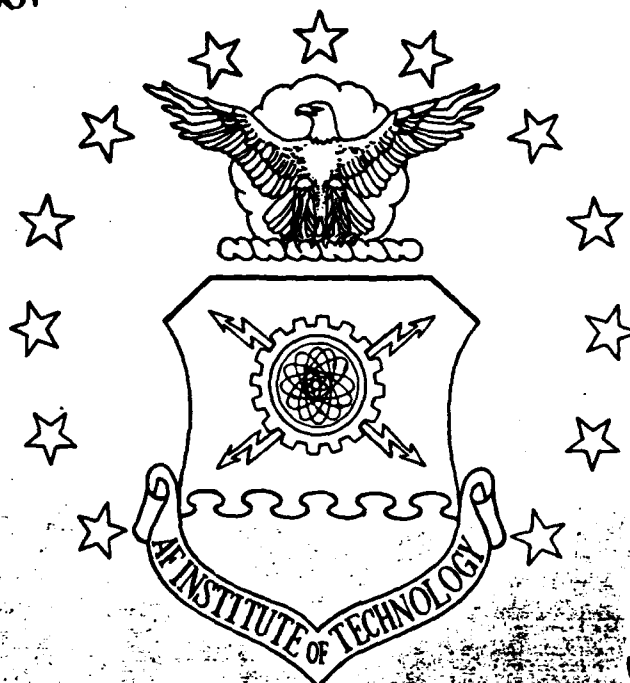


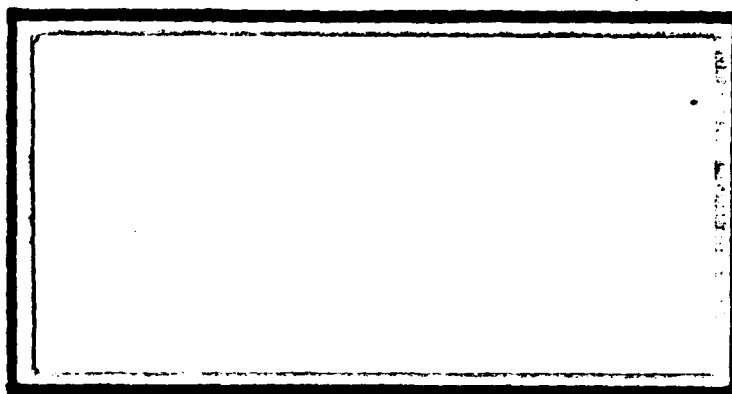
AD-A201 569

IC FILE COPY

2



DTIC
ELECTE
DEC 22 1988
S H D



DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

DISTRIBUTION STATEMENT A

Approved for public release
Distribution Unlimited

88 12 22 012

2

AFIT/GLM/LSM/88S-48

COMBAT SUPPORT AND THE OPERATIONAL

COMMANDER

THESIS

Donald C. McNeeley, Jr., B.A.

Lieutenant, USN

AFIT/GLM/LSM/88S-48

DTIC
ELECTE
DEC 22 1988
S H D

Approved for public release; distribution
unlimited

The contents of the document are technically accurate, and no sensitive items, detrimental ideas, or deleterious information is contained therein. Furthermore, the views expressed in the document are those of the author and do not necessarily reflect the views of the School of Systems and Logistics, the Air University, the United States Air Force, or the Department of Defense.

AFIT/GLM/LSM/88S-48

COMBAT SUPPORT AND THE OPERATIONAL COMMANDER

THESIS

Presented to the Faculty of the School of Systems and
Logistics of the Air Force Institute of Technology
Air University

In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Logistics Management

Donald C. McNeeley, Jr., B.A.
Lieutenant, USN

September, 1988

Approved for public release; distribution unlimited

Acknowledgements

I want to thank those individuals that took the time out of their schedules to participate in this study. Their experience and insight is represented in these pages.

Next, I desire to thank Lieutenant Colonel Dennis Dragich, who, as my thesis advisor, allowed me to be creative with the thesis, and gave guidance when necessary. His advice and counsel was at all times both beneficial and worthwhile. Also, I want to thank Lieutenant Colonel Richard Moore and Mrs. Melissa Lovejoy for their editing and helpful suggestions concerning the text.

To my boys, Andrew and David, who knew when daddy was at his wits end; went and played by themselves quietly in their room. Above all, I must mention the love and joy of my life, my wife Nancy, who deserves as much credit for the thesis as myself. She not only supported and encouraged me during the preparation; but edited the text, corrected spelling, made suggestions, and even did statistical calculations to ease the task of producing a thesis.

Finally, I desire to acknowledge the Creator of the universe, in whom this great nation has always trusted. Even, as our coinage states "In God We Trust", I trust God will continue to lead this nation through every crisis, even as He has led me through producing this thesis.

Donald McNeeley



| | |
|--------------------|--|
| For | |
| I | <input checked="checked" type="checkbox"/> |
| | <input type="checkbox"/> |
| | <input type="checkbox"/> |
| on | |
| on/ | |
| Availability Codes | |
| Avail and/or | |
| Dist | Special - |
| A-1 | |

Table of Contents

| | Page |
|---|------|
| Acknowledgements | ii |
| List of Figures | vi |
| List of Tables | vii |
| Abstract | viii |
| I. Introduction | 1 |
| Chapter Overview | 1 |
| Definition of Terms | 1 |
| Background | 2 |
| Problem Statement | 4 |
| Investigative Questions | 5 |
| Scope | 5 |
| Limitations | 6 |
| Potential Contributions | 7 |
| Chapter Summary | 8 |
| II. Literature Review | 10 |
| Chapter Overview | 10 |
| History of Combat Support Doctrine | 10 |
| Theory of War | 20 |
| Strategy, Tactics, and Logistics | 21 |
| Consumer Logistics and Combat Support ... | 28 |
| Combat Support Sources | 28 |
| Processes of Combat Support | 29 |
| Final Tests | 35 |
| Chapter Summary | 36 |
| III. Methodology | 37 |
| Chapter Overview | 37 |
| General Description | 37 |
| Model Development | 39 |
| Developed Models | 39 |
| Delphi Technique | 43 |
| Survey Questionnaire Characteristics ... | 45 |
| Expert Panel Selection | 46 |
| Statistical Concepts | 47 |
| Analysis Method | 50 |
| Chapter Summary | 52 |
| IV. Analysis and Findings | 53 |
| Chapter Overview | 53 |

| | Page |
|---|------|
| Data Collection Process | 53 |
| Overall Survey Consensus | 56 |
| Survey Results Analysis | 57 |
| Investigative Question #1 Analysis | 57 |
| Investigative Question #2 Analysis | 61 |
| Investigative Question #3 Analysis | 65 |
| Investigative Question #4 Analysis | 87 |
| Investigative Question #5 Analysis | 96 |
| Summary Conclusions on Investigative Questions | 106 |
| Chapter Summary | 110 |
| V. Conclusions and Recommendations | 111 |
| Chapter Overview | 111 |
| Conclusions | 111 |
| Recommendations | 113 |
| Further Research Recommendations | 114 |
| Chapter Summary | 115 |
| Appendix A: Definitions | 117 |
| Appendix B: Final Format for the Initial Survey | 118 |
| Appendix C: Relationships of Questions to Developed Models | 145 |
| Appendix D: Breakdown of Survey Questions by Investigative Question | 154 |
| Appendix E: Critical Values of TL for the Wilcoxon Rank Sum Test | 168 |
| Appendix F: Critical Values of Spearman's Rank Correlation Coefficient | 169 |
| Appendix G: Statistical Analysis System (SAS) Programs Used | 170 |
| Appendix H: Results of the First Delphi Round | 171 |
| Appendix I: Comments from the First Delphi Round | 182 |
| Appendix J: Results of the Second Delphi Round | 219 |
| Appendix K: Comments from the Second Delphi Round | 230 |

| | Page |
|---|------|
| Appendix L: Results of the Third Delphi Round | 250 |
| Appendix M: Comments from the Third Delphi Round | 261 |
| Appendix N: Statistical Results for Survey Questions | 266 |
| Appendix O: Spearman Correlation Coefficient Results for Survey Questions | 284 |
| Bibliography | 292 |
| Vita | 296 |

List of Figures

| Figure | | Page |
|--------|---|------|
| 1. | Strategy - Tactics Interaction | 24 |
| 2. | Strategy, Tactics and Logistics Interactions | 27 |
| 3. | Combat Support Model | 41 |
| 4. | Semantic Differential Scale | 45 |

List of Tables

| Table | | Page |
|-------|--|------|
| 1. | Panel Demographics | 56 |
| 2. | Investigative Question #1 Survey Questions with Consensus | 58 |
| 3. | Investigative Question #2 Survey Questions with Consensus | 61 |
| 4. | Investigative Question #3 Survey Questions with Consensus | 66 |
| 5. | Investigative Question #4 Survey Questions with Consensus | 88 |
| 6. | Investigative Question #5 Survey Questions with Consensus | 97 |

Abstract

This research study determined current combat support doctrine and how it affects operational commanders. Current combat support doctrine was first determined by a literature review, and then compared to what personnel in the tactical environment considered to be combat support. What effect combat support doctrine has on the operational commander was determined from personnel in the tactical environment.

A Delphi questionnaire was developed to determine what personnel in the tactical environment held to be combat support and how it affects operational commanders. This questionnaire was sent to a panel of 30 personnel whose current assignment involved some aspect of combat support. Data was collected from U.S. Air Force and U.S. Navy personnel with results for the separate populations and the combined population used to determine if personnel in the tactical environment were in accord with the literature review concerning combat support, and the effects of combat support on the operational commander.

The analysis indicated that current combat support doctrine can be obtained from available literature, but personnel have not developed a consensus on the theoretical aspects of strategy, tactics, logistics and combat support. Additionally, the research indicated that operational commanders are relying on experience and intercommunication

among strategists, tacticians and logisticians to obtain knowledge of how combat support affects both the tactical environment and the operational commander.

COMBAT SUPPORT AND THE OPERATIONAL COMMANDER

Chapter I. Introduction

Chapter Overview

This chapter introduces the concept of combat support as an integral aspect of tactics, logistics and strategy. Definitions for key terms used throughout the research will be presented. Following a brief background statement relating the development of the concept, the specific problem and investigative questions will be examined. Finally, the study's scope and specific limitations, as well as the reason for investigating the topic of combat support, and effects on the operational commander will be delineated.

Definition of Terms

Several key terms will be used frequently during the course of this study. To assist with an understanding of these terms, the following definitions are provided.

1. Strategy- the use of military means to achieve political ends (14:11).
2. Tactics- the actual disposition and maneuvering of armed forces in combat (14:11).
3. Logistics- the science of determining, acquiring, and distributing those resources necessary for attainment of objectives (23:Chart VII).

4. Combat Support- the art and science of creating and sustaining combat capability (5:1-1).

Additional definitions for terms used in this study are listed in Appendix A.

Background

It has been noted that Genghis Khan created the greatest logistically supported army the world had known up to his time (28:27; 40:xiii). His ability to integrate strategy, tactics and logistics was the driving force behind this accomplishment. By shrewdly using tactics and logistics to attain his goals, Genghis Khan soon controlled most of Asia. His rapid and accurate directing of troops coupled with complete control of the tactical situation insured success on the battlefield. He used Mongolian ponies to provide mobile logistical support to include transportation, drink, food, and even a liquor (28:28). His understanding of the interrelationships between tactics, strategy, and logistics, enabled Genghis Khan to achieve his goals.

Even as Genghis Khan used tactics and logistics to attain his strategic goals, so must military leaders of today use tactics and logistics to attain their strategic goals. Rear Admiral Henry E. Eccles once noted: "In the area of active operations, logistics and tactics must work together to serve the interests of strategy" (11:45).

With weapon systems becoming more complex, and warfare more diverse, the concept of tactics and logistics working together has become extremely important. General Bruce C. Clarke, USA (Ret.) made the following statement:

Modern war will be fluid, flexible, and spread out and will consist of many battles fought by small units. The tactical logistics problems will be very great -- requiring the maintenance of vehicles and weapons and the rehabilitation of the operators of these weapons and equipment on an even greater scale than in any previous war [3:6].

As General Clarke indicates the ability of a modern military force to sustain itself has decreased dramatically. Just as Mongolian ponies can no longer provide total logistical support for an army, today's military force requires strong and varied support to attain its goals. The United States Air Force and the United States Navy have recognized this problem and have been working individually towards a doctrine of combat support. U.S. Air Force doctrine was promulgated in 1985 as Air Force Manual 2-15 and changed in 1987 to Air Force Manual 1-10. This was the result of attempts to formulate a combat support doctrine beginning with Lt. Colonel Richard V. Badalemente in 1980 at the Air Force Institute of Technology (26:10). In 1986, the U.S. Navy published a definitive statement in OPNAVINST 4000.85 concerning the Navy's views on the broad concept of the Navy Logistics System. This document assigned logistics support functions and responsibilities to the various naval activities within the combat support arena.

The reason that OPNAVINST 4000.85 is considered as the Navy's statement on combat support is due to the function of the Navy Logistics System. This function is to employ logistic processes and provide logistics products in support of the Navy's unique operational needs (30:1-2). It meets the definition stated earlier that combat support is the art of creating and sustaining combat capability. Thus the two services have approached the problem of combat support from two separate avenues. The Air Force has approached the problem from a doctrinal viewpoint; the Navy from a pragmatic viewpoint.

Problem Statement

The lack of a viable combat support doctrine has been evident throughout the history of warfare. For example, during World War II, in spite of the over two years devoted to planning for Operation Overlord, events during the operation failed to remotely resemble the developed combat support plan (36; 37:88-89). The lack of a viable combat support doctrine understood by operational commanders was the primary cause of the problem (37:89; 41:206). Examples in warfare history indicate that this is not a new problem. In today's fast paced and complex environment, operational commanders must understand combat support doctrine and the impact of combat support on the operational environment.

The question that needs to be answered is: What is current combat support doctrine, and how does it affect the

operational commander? Note that there is no attempt to determine the effectiveness of current combat support doctrine.

Investigative Questions

To ascertain the current combat support doctrine and its effect on the operational commander, a series of questions will be pursued. These are:

1. What relationships are there between strategy, tactics, and logistics?
2. What is the current combat support doctrine?
3. What components comprise the current combat support doctrine?
4. How does the current doctrine become incorporated into the tactical environment?
5. How does the commanding officer of a unit obtain knowledge of the current doctrine which is affecting the tactical situation?

Scope

The study will enable personnel to understand the complex and diverse interrelationships of strategy, tactics, logistics, and combat support. This will be accomplished primarily from a literature review which will investigate these interrelationships. A Delphi survey will determine how combat support is incorporated into and impacts the

tactical environment. Additionally, the survey will investigate the methods operational commanders use to obtain knowledge of combat support plans and effects. The study will investigate the broad concept of combat support through use of both a literature review and the Delphi survey, leaving more detailed analysis to be addressed by additional research. Armed with an understanding of the broad concepts of combat support, operational commanders will have insight into solving the specifics when they occur.

Limitations

This study has several limitations. The first is the generality of the study. It will investigate the current model of combat support doctrine, but will not address specific problems that arise during the trauma of any combat situation. These specific problems arise due to the diverse and complex environment that exists during any combat support function. Secondly, the selection of a panel of experts in the field of combat support to obtain data was based on U.S Air Force and U.S. Navy duty assignments. Thus, while these personnel are recognized by their respective services as experts in both logistics and tactics, their functional skill area may not have been in combat support. Any bias that might occur should be considered prior to accepting the applicability of the conclusions. Third, the complex human element associated with command is an unpredictable factor. When the

operational commander integrates available combat support plans with his tactical plans, his personality, knowledge, discipline, and other human factors rapidly come into play. This study will not attempt to analyze this dynamic aspect of combat support. Finally, the study will not investigate the effectiveness of current combat support, nor the effectiveness of communicating the effects of combat support on operations to operational commanders.

Potential Contributions

The primary contribution of this study is to increase the awareness of the critical impact combat support has on combat and mission readiness, and how the operational commanders obtain knowledge of combat support effects. Combat support has been identified as a primary force behind both defeat and victory, as evidenced by specific events (41:235; 38:8; 40:xx; 9:24-25). For example, during the Battle of the Coral Sea the USS YORKTOWN was badly damaged. The official repair estimates extended up to 90 days. In spite of the 90 day repair estimate, she was repaired in less than two days due to combat support improvisation and imaginative leadership (12:78). At first glance, the combat support considerations gave credence to the 90 day repair time, but by perseverance and artful management of combat support by operational leaders, the USS YORKTOWN was ready for the battle of Midway, which was the turning point in the Pacific. Another example is the combat support activities

during the 1973 Arab-Israeli War. After the initial success of the Egyptian forces, Israel was able to quickly regroup and assume the initiative due to a responsive combat support system, and the operational commanders' ability to work within that system (29). Additionally, the Israeli forces' rapid replacement or repair of assets was made possible by the responsive U.S. logistics system (12:80). However, combat support has not always responded in the manner required. The halting of Patton's army during World War II due to a lack of fuel, and the previously mentioned problems with combat support during Operation Overlord, are just two examples of how the interaction between combat support plans and tactical plans failed.

The combat commander must learn the interrelationships between tactics, logistics, strategy and combat support. He will not be afforded the leisure of waiting for combat support to happen. He must be aware of the impact combat support has upon operational plans, and he must integrate combat support plans into his tactics.

Chapter Summary

The importance of combat support in warfare was briefly stated and key terms defined. The need for combat support to be understood by operational commanders and integrated into their operational plans was presented as the motivation for the study. Several examples demonstrated that an operational commander's knowledge of combat support doctrine

has been integral aspect of attaining assigned strategic goals. Therefore, current combat support doctrine, as well as the methods by which operational commanders obtain that knowledge, must be determined. The study will demonstrate the critical impact combat support has on combat and mission readiness, and will examine combat support and the elements contained in the doctrine. Lastly, the information will affect the ability of operational commanders and logisticians to develop jointly an understanding of combat support capabilities and effects. The limitations and scope of this study indicated that the human elements of command and the trauma of war would not be identified nor studied; neither will this study examine the effectiveness of current doctrine, or the method operational commanders use to obtain knowledge of those aspects. In Chapter Two, a review of the literature indicating strategic, tactical, logistical, and combat support interrelationships will be presented, as well as an investigation into the processes within combat support.

Chapter II. Literature Review

Chapter Overview

This chapter presents a history of combat support followed by a theory of war. The theory of war will lead to a need to understand the principles of strategy, tactics and logistics, and the relationships among the three. Logistics' interaction with tactics, known as combat support, will be the main focus of the study. Finally, combat support doctrine concepts and processes will be examined.

History of Combat Support Doctrine

As noted in the introductory chapter, Genghis Khan, with his Mongolian ponies, had created the best supported army the world had yet seen. His method of living off the land and therefore having a self-sustaining army, had been the norm of combat support doctrine for centuries. Old Testament armies used this method as evidenced in I Samuel 25:2-8, where David sent troops to a neighboring farm to obtain food for his army. When denied, David was willing to obtain by force the food he required for his army (I Samuel 25:9-13). This same method was used by operational commanders into the seventeenth century who based their strategy on the following fundamental logistical facts of life.

First, in order to live, it was indispensable to keep moving. Second, when deciding on the direction of

one's movements, it was not necessary to worry overmuch about maintaining contact with base. Third, it was important to follow rivers and, as far as possible, dominate their course [41:12-13].

As noted above, armies lived mainly off the land, and as long as they kept moving there was no need for a complex combat support doctrine. As Sun Tzu noted:

The wise general sees to it that his troops feed on the enemy, for one bushel of the enemy's provisions is equivalent to twenty of his; one hundredweight of enemy fodder to twenty hundredweight of his" [15:74]

However, there were some logistics constraints being placed on operational commanders. To be successful, they needed to control the riverways they traveled (15:105; 41:12-13).

During the 1700's there was a steady increase in provisions required for an army. As,

. . . warfare became more complex the impedimenta carried by armies into the field, as well as their consumption per man per day, increased at an even greater rate than their manpower [41:110].

This increase of provisions required by armies, continues still today.

During the 1800's, in addition to the continued increase in provisioning requirements, the concept of control of waterways evolved into the need for control of railroads and roads as well (40:10). This was due to an expansion of available transportation modes, by the building of new railroads, roads, and the bridging of rivers. The combination of new transportation capabilities and increased consumption rates resulted in the introduction of support services. Armies were becoming dependent on support, instead of being independent from support as in the past.

This was recognized by the Prussian Army, which developed a supply support service branch to provide for the needs of troops during wartime, yet failed to provide needed support during the Franco-Prussian War (41:103). This absence of adequate support was evident in other armies as well.

During the United States Civil War, the quartermaster branch of the Union Army was unable to supply the needs of the army. The federal government delegated the tasks of feeding, clothing, and equipping troops to the states with reimbursement from the federal government (37:32). In other words, armies needed more provisions than the established support service branch could provide.

In addition to the lack of a viable support service, the concept of control of transportation routes became important. Union operational commanders' control of railroads, roads, and waterways forced Confederate troops in Vicksburg into slow starvation and finally surrender. Also during the Civil War, railroads started providing the speed and capability to handle the increased level of stores required by armies during combat (37:46). However, the use of foraging teams to obtain required food items was still used by both Northern and Southern troops. Even though experiences in the United States and Europe indicated the need for a reliable organization to centrally manage supplies and transportation requirements, military leaders failed to change their combat support doctrine. This sad state of affairs was noted in 1868 after Germany's war with France.

Despite the experiences of 1866, a central supply and railway transportation headquarters for the whole army had not been created, with the result that the contractors, in their anxiety to make as much profit as possible, pushed forward the maximum quantity of supplies without regard to the limitations of the railway [41:105].

As military leaders entered the early 1900's, the doctrine of combat support was still basically the same as during the 1700's, that of foraging off the countryside being invaded and control of transportation routes. Even though experiences in:

. . . Cuba, Puerto Rico, the Philippines, China, and Mexico gave the US military and the nation needed experience in organizing and sustaining forces beyond its own frontiers [9:27].

the prevailing attitude towards combat support was still mired in the 19th century. As an example of the prevailing combat support doctrine, von Schlieffen solved his logistics problems for the invasion of western Europe during World War I by saying that the troops invading through the northern portion of western Europe, ". . . would have to make very great exertions" (37:609). As a side note it is interesting that as part of this plan, ". . . German troops were expected to live off the country and actually did so" (41:233).

So, while there was a need for a change in combat support doctrine, it was not recognized by military leaders. The need for a suitable combat support doctrine due to the evolution of military transportation requirements coupled with a similar change in combat support requirements would

not be recognized until the early months of World War I. Thus while the need for a doctrine to control combat support actions seems evident today, acceptance of combat support as a major requirement of warfare was not acknowledged until the opening events of World War I. The former concept was rapidly replaced by an understanding that combat support had been changed by the increased complexity of war and transportation requirements. Prior to World War I, subsistence items had the largest slice of the logistical pie. In the first months of World War I, ammunition became the largest expenditure. To support the tremendous outlay of materiel there was an urgent need to revamp combat support doctrine. Due to the rise in consumption in ammunition and, for the first time, motor fuel, armies could no longer live off the land (41:233). An example of the change in combat support doctrine that ammunition requirements forced on military leaders is illustrated by the following:

. . . in Flanders . . . a few German planes . . . attacked the ammunition base at Audruicq. There were twenty-four ammunition sheds at that place. So great was the loss to the British 2nd Army in Flanders that a special Board of Inquiry was appointed. After extended investigation, this board reached the conclusion that since the amount of ammunition destroyed in that attack was equal to an entire day of fire for all the artillery with the 2nd British Army in Flanders, steps should be taken to provide many small dispersed depots rather than one concentrated ammunition base such as existed at Audruicq [44:11-12].

The important lesson here is to realize that military leaders were forced to acknowledge new combat support concepts. However, after higher authorities in the British

Army reviewed the report, it was decided that the recommendations could not be followed due to the requirements for new rail lines and facilities (44:12). Again a logistical aspect was the root of the overall problem.

World War I should have been the turning point for combat support doctrine. From then on, one would have thought that combat support would have taken its rightful place in military theory. However, after World War I, combat support doctrine relapsed to a peacetime status (37:78). Thus the United States was again unprepared logistically to enter a war in 1941. With the start of World War II, it quickly became evident that a combat support doctrine was required. The United States was not alone in this area. Even Field Marshall Rommel failed to understand completely combat support doctrine, when he attempted to capture the Suez Canal and near east oil fields. His operational goals were not consistent with Berlin's and thus he was deprived of essential resources (17:74). The requirement for a combat support doctrine was the result of the quantum leap that had been made in the mechanization of combat equipment since World War I (37:83). There was a great need for qualified men who could handle the huge influx of materiel and properly distribute that materiel to those commands where needed. Fantastic logistics problems were overcome during the war, but not as a result of proper advance planning or ability of

operational commanders. Rather it was ". . . the junior officers and NCOs who did what had to be done, often under extreme hardship and terrible odds, and succeeded" (43:13). The impact of World War II firmly impressed on military leaders that it was a war that had to include the immense topic of logistics and with it the topic of combat support.

From the start of war preparations, it became evident that logistics was going to be the deciding factor. Logistics, being everything needed to create and sustain military forces of the U.S. and its allies, was the limiting factor and often dictated strategic decisions because it might or might not be able to marshall the required people and other resources It was soon obvious logistics could neither create nor support the desired military capability around the world unless it was included in cooperative and coordinated planning involving all the military services in addition to our allies [43:22].

If a better understanding of combat support doctrine had been available, the war might have been over faster and with fewer casualties. In World War II the operational commander who was able to integrate combat support doctrine with tactics stood a better chance of attaining his strategic objectives. This concept was evident in the planning for Operation Overlord where ". . . the primary objective of the plan read: 'To secure a lodgement on the continent from which further offensive operations can be developed'" (37:84). Further, the doctrine of combat support as perceived by the military leaders who planned Operation Overlord is perhaps partially contained here:

The men who planned operation 'Overlord' were well aware that the success of an eventual Allied invasion of Europe would depend above all on their ability to feed-in troops and equipment at a higher rate than the enemy. While the problem itself was not in principle

different from those facing commanders of all ages, the Allies' approach to it was unique. Starting approximately eighteen months before the invasion, a huge theoretical model consisting of thousands of components was gradually built up, the aim of the exercise being to achieve a comprehensive view of all the factors that would affect the rate of flow [41:206].

Here was the first attempt to understand the factors involved in combat support of a large-scale operation--the most extensive one to date. However, problems with the developed combat support plan manifested themselves on the first day of the invasion. Problems with keeping track of stores on cargo ships, what was in the containers, and who was to transport the items, were evident even before the first wave of troops hit the beach. These problems came about because the planners forgot about ". . . the inevitable friction of war" (41:210). Thus World War II was fought using a doctrine of combat support which was not fully developed from the start. These problems continued to influence the battle throughout Europe. Logistics' continued influence was seen in the slowing of the pursuit into Germany in mid-September 1944 and later with the proposed thrust to Berlin (36:424-425). The need for a definitive doctrine was forced on military planners as they learned of the magnitude and complexities of the logistics required to support armed forces in a large conflict. It was learned that ". . . logistics can have a tremendous influence on the course of war" (9:90). Would the lessons of World War II be implemented and retained?

The lessons of World War II were not applied and logistic considerations were not incorporated into the Korean strategy (43:61). The same problems that affected the United States on the eve of World War II affected the armed forces on the advent of the Korean Conflict. Additionally, there were several new problems, the first of which involved transportation capabilities. "The lack of roads and railways made it essential to develop replacement vehicles for the World War II vehicles still in use" (37:136). The second problem involved the integration of allied requirements ranging from food to weapon systems (37:136; 32:7). The last involved the use of a new weapons system, the helicopter, which was soon in such demand that it became and remained a critical supply problem (37:136). These problems, as well as the integration of combat support into all phases of the conflict, were belatedly solved during the Korean Conflict. Again the doctrine of combat support had taken a back seat during a time of peace.

Over and over, the method of preparing for war has been to ". . . pay only lip service to the concepts of combat support" (37:134). As seen during the Vietnam buildup, there was little evidence of planners paying attention to combat support. Combat support planning did not take place " . . . until well after major troop commitments had been made on a piecemeal and often political basis" (9:3).

Thus from the perspective of history:

. . . most armies seem to have prepared their campaigns as best they could on an ad hoc basis, making

great, if uncoordinated, efforts to gather together the largest possible number of tactical vehicles, trucks of all descriptions, railway troops, etc., while giving little, if any, thought to the "ideal" combination which, in theory, would have carried them furthest [41:236].

Is the same process of preparing for war prevalent with today's military leaders? Have today's leaders realized that logistics and its interaction with tactics have a tremendous impact on combat? A.C.P. Wavell in his book, Speaking Generally states:

The more I see of war, the more I realize how it all depends on administration and transportation It takes little skill or imagination to see where you would like your army to be and when; it takes much knowledge and hard work to know where you can place your forces and whether you can maintain them there. A real knowledge of supply and movement factors must be a basis of every leader's plan; only then can he know how and when to take risks with those factors, and battles are won only by taking risks [42:78-9].

The above statement indicates that indeed some military leaders have recognized the importance of combat support and that a real knowledge of combat support doctrine is needed to successfully win battles. Yet, historically, combat support has reacted to shortages of assets in an effort to support military forces (38:8), rather than a providing of resources when needed. For combat support to be effective military commanders cannot allow reactive, but must insist on proactive combat support. To obtain the in-depth knowledge necessary to have proactive combat support, it is necessary that military leaders understand the Theory of War.

Theory of War

"War is a matter of vital importance to the State; the province of life or death; the road to survival or ruin. It is mandatory that it be thoroughly studied" (15:63). With this quote the great Chinese military leader Sun Tzu stated what is the basic principle of war. Machiavelli in the 15th century restated the same when he claimed that "... in peace the ruler should not sit with his hands folded but should always be improving his state's military power against the day of adversity" (31:64). During the 19th century, Heinrich von Treitschke wrote that:

The state's first duty was to maintain its power in its relations with other states and to maintain law within its own borders; its second duty was the conduct of war, the crucible in which the elements in a state's greatness are fused [31:65].

With the safety of a nation at stake during a war, and since neighboring nations have been receiving instructions in the art of war and conquest, a nation must prepare for war (35:500). It is from this perspective that a nation feels justified to take measures necessary to maintain its lifestyle. Major General I.B. Holley, Jr., USAFR (Ret) states that "The armed forces of a nation are maintained principally to provide the means by which external threats can be countered" (16:9). To use established armed forces, a nation will develop doctrines and concepts to counter perceived external threats. Sun Tzu captured the complexity of what this national doctrine of war should contain when he stated:

By doctrine I mean organization, control, assignment of appropriate ranks to officers, regulation of supply routes, and the provision of principle items used by the army [15:65].

However, it was not until the Second World War that this concept of integration was forced upon military leaders. Even so, Rear Admiral Eccles stated in his book, Military Concepts and Philosophy, published in 1965 that: "My central thesis is that military planning, education, and discussion are handicapped by the lack of a comprehensive theory of modern conflict" (11:vi). Just as Sun Tzu understood the need for an integrated theory, so did Rear Admiral Eccles when he stated:

A comprehensive theory of war should include the following description:
The nature and structure of modern conflict and the elements that comprise it,
The manner in which these elements are related to each other,
The manner in which war is related to other parts and actions of human society,
The nature of the various forces that act throughout the whole structure and the description of the way these forces act and interact [11:28].

As this study progresses, the primary focus will be on the first two areas, and will include a theory of logistics, strategy and tactics, with emphasis on the interaction between logistics and tactics (i.e., combat support).

Strategy, Tactics, and Logistics

In this section the concepts of strategy, tactics, and logistics, will be briefly developed and defined and then the interaction between each will be presented.

Strategy. Strategy was earlier defined as "the use of military means to achieve political ends" (14:11). Strategy can and does have a variety of other meanings, but for the purpose of this study this definition will be used. The political ends being achieved are the preservation of the national identity. As noted in the section on a theory of war, a nation feels that it has a right to arm and defend itself against external forces. Therefore the overall strategy of a nation includes the use of forces, military or otherwise to protect the national identity. Further, attaining this basic strategy requires a nation to use all available resources. As noted earlier, the definition of strategy was the attainment of political ends, which means that strategy as seen in the western nations is not just related to military activities, but also includes a wide range of activities. The concepts of diplomacy, economy, political intimidation, etc., all fit into the broad concept of strategy. As implied above, this study will be limited to those concepts which are related to combat and combat support.

The specific portion of strategy related to combat and combat support maintains that military forces must be ready for any possible conflict, ranging from low intensity conflicts to unrestricted thermonuclear war (10:14). With the wide range of conditions that strategy is required to address, strategy must be a statement of:

- What to control
- Why to control
- When to initiate control
- To what degree control
- How long to control
- And, in general, how to control" (12:62).

Other ways of looking at the specific segment of combat and combat support within the national strategy are by the type of war, type of weapons used, type of warfare deterred, the main operational idea, and/or the environment (i.e., naval, ground, air, and space) (22:210). As can be seen in the above, a national strategy can have a variety of contexts, and a nation's strategy implies all of the above concepts. The national strategy informs a military leader what type of equipment will be needed and why the preparations are in progress. The national strategy will inform him of the environment in which he will be fighting. All of these concepts and more are aspects that the operational commander must understand to formulate his tactics and integrate his logistics into combat support.

Tactics. The definition of tactics as noted earlier relates to the actual disposition and maneuvering of armed forces in combat. Whether this disposition and maneuvering is in times of actual combat or maintaining readiness for combat is immaterial. Operational commanders spend a lot of time practicing the ability to position and maneuver armed forces in combat, because they realize that tactics can be a nation's means for attaining a specific national objective.

Tactics is considered to be the cutting edge of strategy (11:104) and, as such, takes the national strategy and applies those forces, military or otherwise, that will result in the attainment of the stated goals. Due to the increasing complexity of warfare, tactical plans change frequently. Therefore, to formulate effective tactical plans the principle of tactical immediacy must be understood. Rear Adminal Eccles stated that "... tactics is the immediate employment of forces or equipment" (11:105). The immediate employment of forces and equipment will aid in securing strategic goals.

The interaction between strategy and tactics is seen in Figure 1 where the intersection of strategy and tactics represents the practical application of the national strategy being achieved by specific tactical operations (11:104).

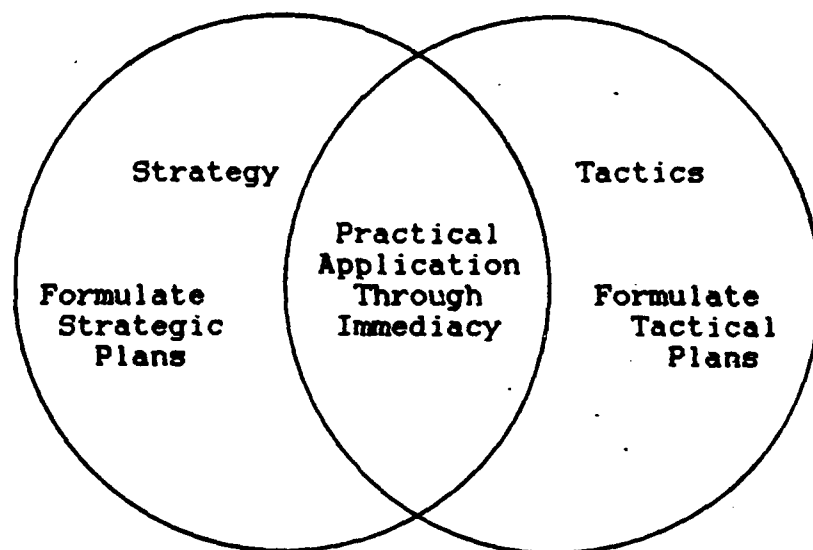


Figure 1. Strategy - Tactics Interaction
(12:62)

It is in this area of intersection that the immediate tactical employment, during peace time or in combat, aids in obtaining a nation's strategy. The principle of immediacy overrides all other principles in the planning process.

Logistics. Logistics was defined earlier as the science of determining, acquiring, and distributing those resources necessary for attainment of objectives. From the tactical perspective these objectives are tactical, whereas from the strategic point of view these objectives are strategic. Logistics has a profound influence on both tactical and strategic objectives. Logistics affects strategy in the area of what the national economy can provide in the way of materiel, equipment, and men, hereafter called producer logistics (12:64-65). Tactics is affected by the logistics of providing for the orderly distribution of the materiel, equipment, and men, provided by the nation; hereafter called consumer logistics (12:64-65). Logistics then is the channel between strategy and the national capability on the one hand, and tactics and what is produced by the nation on the other. To illustrate these interactions, Eccles stated:

In all forms of modern conflict, the scope and timing of both strategic plans and tactical action will be dominated by logistics considerations, producer logistics dominating strategic timing and consumer logistics dominating tactical timing [12:63].

To fully understand the consequences of inadequate logistics, the operational commander must understand this interaction between strategy, tactics and logistics. When

the command point of view is that " . . . logistics itself has no purpose other than to create and to support combat forces which are responsive to the needs of the command" (10:9), the integration of strategy, tactics and logistics will cease to function properly and will not attain national political ends. Logistics is the means by which tactics accomplishes some task, attaining the strategic goals set forth by the nation. The interactions between these three terms are seen in Figure 2. The intersection of tactics and logistics is the point where consumer logistics occurs. The intersection of strategy and logistics is the point where producer logistics occurs. The intersection of strategy, tactics, and logistics represents the complex human elements of command (12:62) and is beyond the scope of this study. Additionally, while producer logistics is an important influence on the national strategy, an investigation of this aspect is beyond the scope of this study. However, the intersection of tactics and logistics or, as called by Eccles, consumer logistics has an impact on this study.

The elements of consumer logistics are those contained in the following statement: "Logistics as a system works to balance time and place of need with quantity, quality, and form of resource available" (33:6). It is the means whereby national capacity, as identified through producer logistics, aids in attaining the national strategy through the tactical environment. This process feeds the resources required, at the time required, and where required at the proper quantity

and quality. Thus:

Logistics is the provision of the physical means by which power is exercised by organized forces. In military terms, it is the creation and substaisted support of combat forces and weapons. Its objective is maximum sustained combat effectiveness [10:22].

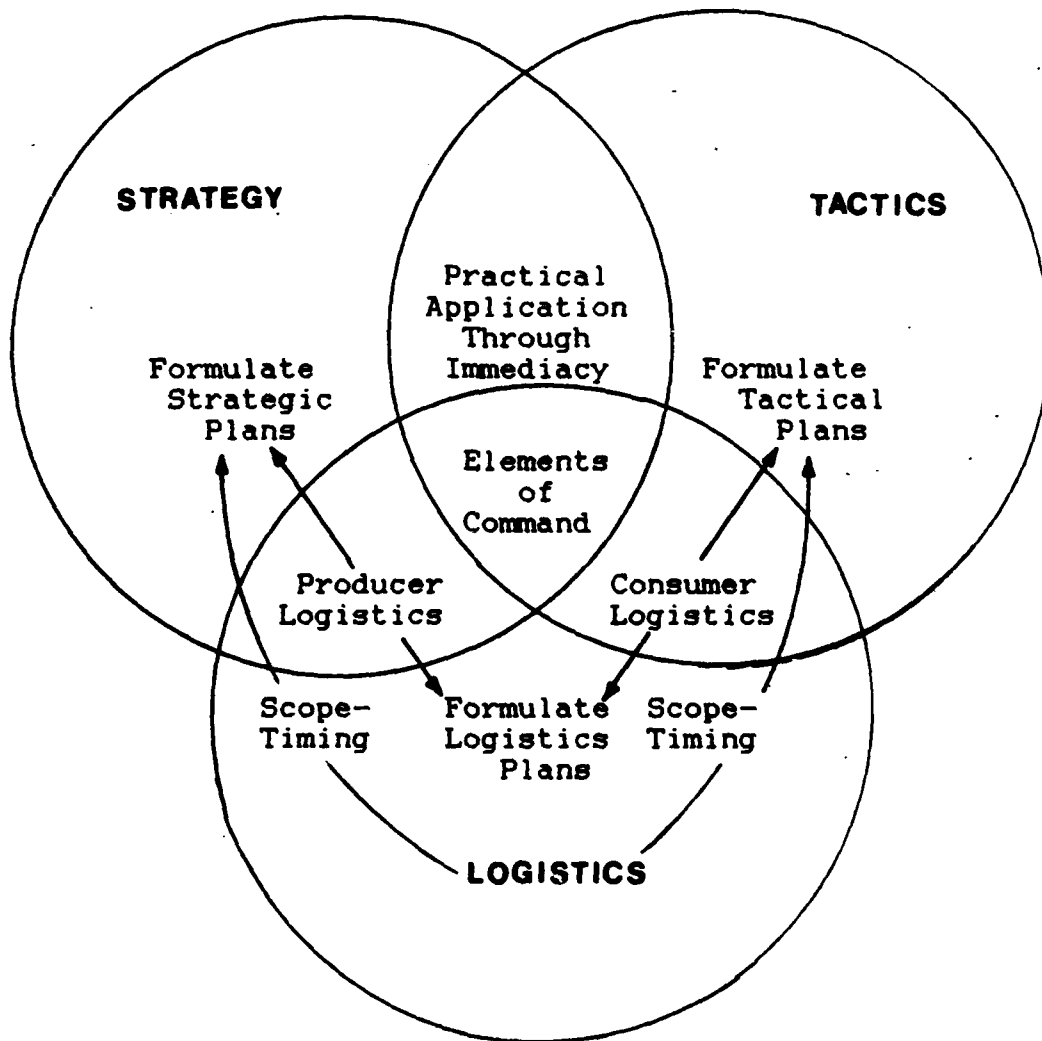


Figure 2. Strategy, Tactics and Logistics Interactions
(12:62)

Admiral Eccles' concept of logistics, consumer logistics in particular, is the same as the definition for combat support. This was recognized when the U.S. Air Force

developed its formalized combat support doctrine. During the doctrinal development, Eccles' definition for logistics was accepted as the definition for combat support (26:12).

Consumer Logistics and Combat Support

As stated in the introductory chapter, this study is concerned with those concepts that deal with combat and combat support. Combat support is the same as consumer logistics which is the intersection of tactics and logistics. A comparison of the definition for combat support from Chapter I and the quotation above reveals that the two terms are synonymous. Therefore, the term combat support will be used to identify the interaction between logistics and tactics. Other terms which have also been used in the literature are tactical logistics (3:6), military logistics (33:1), combat logistics (34:1) and of course logistics itself. The need to understand combat support can be understood when it is seen that the operational commander's resources:

. . . include both tactical and logistical resources, their blended employment being "operations". [Thus,] we see how important this whole discussion is to the attainment of operational readiness and combat effectiveness. [12:64].

Combat Support Sources

The primary source for combat support is a nation's economic capacity, which is the fundamental means used to

provide for the men, equipment, materiel, and facilities, that are required by the operational commanders for tactical requirements (12:63). It is the willingness of a nation to provide economically for military forces and preparedness that will dictate the degree of combat support to be accomplished. The second source for combat support is the degree of planning for combat support functions (12:90). Planning for combat support integrates logistics into the tactical environment. Both sources must be understood if the operational commander desires to attain the strategic goals. This type of planning consists of evaluating combat requirements, and ascertaining the relationship required between tactics and logistics. The third source is the effect of command upon combat support. Command is the process of transforming the available national resources into effective military power (12:65).

The operational commander must understand these sources to correctly integrate combat support into his tactical plans. The processes of combat support are presented in the following section.

Processes of Combat Support

AFM 1-10, identifies eight processes of combat support which were used as the basis for the development of the remainder of this study. These processes are:

| | | | |
|-------------|--------------|-------------|--------------|
| Definition | Acquisition | Maturation | Distribution |
| Integration | Preservation | Restoration | Disposition |

These processes and the components within each are examined in turn.

The Definition Process. Determining tomorrow's combat capabilities (5:2-1) was described as the definition process. The components of quantity and quality of manpower, equipment, materiel, and information required for tomorrow's combat situation (26:15) are primary factors. Determination of the operational requirements relative to these components belongs to the tactician who identifies the levels that he feels will be required to attain the nation's strategy. Today, the national strategy requires a large military force ready for mobilization. This requires the definition process to include requirements for: transportation (19:10), construction (19:45), petroleum, oil, and lubricants (POL) (19:57), communications (19:51), containerization (19:63), and others. These requirements should be determined prior to development of specific combat support requirements. Through the use of quantitative analysis and forecasting procedures, logisticians can define expected quantities of materiel, men, facilities, equipment, and others, required to support the tactical environment. However, these formulations depend on understanding established policies and the limitations.

The Acquisition Process. Converting resources into potential warfighting assets (5:2-2) was defined as the acquisition process. The single most important component within the process is the length of the acquisition process.

The industrial base is not able to surge to wartime requirements as quickly as it has in the past (31:5). The complexity of today's weapon systems and forecasted weapon systems means that in the next war the industrial base will not respond as rapidly as required, and the military forces will fight the war with the equipment available. The logistician must be aware of the problems within the acquisition process. He must relate to the tactician the lack of responsiveness and unavailability of the industrial complex for rapid support during conflict. The tactician will be required to fight the war as is, using the equipment and facilities that he already has available. Additionally, the volume and urgency of the requirements during the actual conflict will result in acquisition processes that would almost amount to stealing. Factories and industries may be directed to perform tasks without contracts or the niceties evident in peacetime (34).

The Maturation Process. Preparing military assets for combat (5:2-3) was defined as the maturation process. This process has the following components: training of men, testing and operational usage of equipment, (26:16) and actual combat system usage under simulated combat conditions (21:25). The purpose of the maturing process from the human point of view is obtain the "logistics warrior" (24:9). The logistics warrior is the logistician who is able to integrate the concepts of tactics and strategy into the logistical framework and derive combat support plans which

will support the tactics required to attain strategic goals. To accomplish the maturing of personnel, the lines of communication between the tactician and the logistician must remain open.

The Distribution Process. Transferring resources from one location to another for deterrent or warfighting purposes (5:2-3) was defined as the distribution process. This involves moving people, resources, materiel, facilities and information (26:16). The primary component here is acknowledgement of the physical means for the actual transportation. The relationships between the capabilities of sealift, airlift and surface transport require intense coordination. Each mode of transportation will need to be controlled for the link between assets location and the combat area to be effective and efficient. Transportation is the means of getting ". . . the right thing to the right place at the right time" (33:42). For effective transportation, military forces will have to carefully follow the established priority system. Once materiel has been delivered to the right place it must be managed (19:31), facilities allocated (19:47), and materiel handling equipment obtained (33:44). Again in this area quantitative methods apply (12:72; 33:44), but do not provide the complete answer.

The Integration Process. Developing assets into a synchronized warfighting team (5:2-4) was defined as the

integration process. Integration is the glue that maintains combat support as it interacts between: the civilian and military economy, the active and reserve military forces, the deployed and host nation's forces (27:10). It is the means whereby the friction between the armed services will be lessened to allow for proper joint logistics activity. Integration between tacticians and logisticians also must occur if a viable combat support doctrine is to be attained. This would involve planning tactics and logistics at the same time, allowing the logistician to have an equal voice in the decision making process (21:26). Lastly, the need for integration between the information systems of both deployed and host nation forces is necessary for proper combat support.

The Preservation Process. Protecting assets from nuclear, chemical, biological, electronic or conventional threats (5:2-4) was defined as the preservation process. The preservation process includes the components of active and passive defense, hardening and concealment, and other techniques used to protect assets (26:16). Recognition of the factors that will be encountered during combat and proper preparation is the process being described. Relationships between activities such as security (27:11), providing for basic human needs (34), construction capabilities (19:45), and POL requirements (19:57) all affect the preservation process. The tactician imparts the

requirements for the components and the logistician provides the means for attainment.

The Restoration Process. Renewing assets weakened by age, intensity of use, design limitations, exposure to combat, and adaptability (5:2-5) was defined as the restoration process. The primary component within the restoration process is the extremely important one of maintenance. "It is the job of maintenance to sustain equipment in a state of operational readiness consistent with the demands of the operating forces" (4:iii). The primary reason for maintenance on equipment and facilities is to maintain readiness for immediate conflict. "Since it would be disastrous to delay mobilization until hostilities begin, it is necessary to be in a continued state of readiness and to be able to respond rapidly in order to maximize our military advantage" (4:2). The tactician informs the logistician regarding his restoration requirements which must be obtained.

The Disposition Process. Recycling, transferring, retiring, or divesting of assets that no longer meet combat needs (5:2-5) was defined as the disposition process. The primary component within this function are the divestment of "... concepts, doctrines, policies, functions, organizations, procedures, and weapon systems that can no longer effectively contribute to combat" (27:15). Although this process should be an ongoing iteration, combat support has not been a willing subject. Additionally, during a

combat situation the disposal process includes the need to remove those personnel, equipment, and facilities that are no longer needed and/or a hindrance to the mission. By definition, non-essential personnel are not needed in the combat arena, and thus their removal will be required. This requires additional transportation assets, coordination between transportation activities, and construction activities where these personnel are repositioned, etc. As equipment becomes destroyed or non-functional, disposal is required. Non-functional materiel will have to be surveyed and cannibalized (29:4).

Final Tests

The final tests required of all of the processes and components within combat support are summarized by four words: suitability, feasibility, acceptability, and adequacy. These tests are described here:

Suitability - Will it accomplish the mission, attain the objective, achieve the effect desired? This involves both strategy and politics.

Feasibility - Can it be accomplished with the means available? This involves tactics, logistics and economics.

Acceptability - Are the consequences acceptable? This involves politics, economics, and logistics. More importantly, however, it involves the more fundamental matters of human lives and moral values [12:73].

Adequacy - That the scope and concept of planned operations are sufficient to accomplish the task assigned [20:II-3]. This means that the processes and relationships are capable of obtaining desired results.

Combat support doctrine must incorporate these tests to

prevent the examples of history, where strategy, tactics and logistics have not worked together, from occurring again.

. . . logistics and tactics must work together to serve the interests of strategy [11:45].

Chapter Summary

This chapter presented a history of combat support doctrine and demonstrated that an understanding of a theory of war was necessary for an understanding of combat support doctrine. The theory of war described the relationships between strategy, tactics and logistics. A review of the relationships between strategy, tactics and logistics introduced the concepts of consumer logistics and producer logistics. The literature review demonstrated that consumer logistics was another name for combat support. The combat support concepts of economic capacity, planning, and command were then examined. Finally, the processes and components within combat support were developed from the literature. These processes and components were the basis for the development of the survey which will be described in Chapter III. In Chapter III, the methodology used to obtain data to answer to the investigative questions will be discussed, as well as the method used to analyze the collected data.

Chapter III. Methodology

Chapter Overview

This chapter presents the methodology used in the data collection and data analysis and the process for drawing conclusions. First, a general description of the methodology is presented, followed by explanations of model development and the Delphi technique. Within the description of the Delphi technique, the method used to develop the survey questionnaire, the method used to determine the participants, and the statistical techniques used are presented. Then the process for analyzing the statistical results is identified.

General Description

The overall objective of this study is to determine the current combat support doctrine, and what effect the combat support doctrine has upon the operational commander. A combination of a literature review, Delphi survey and a hypothetical scenario was used to achieve the research objective of this study.

The literature review was accomplished to determine: relationships among strategy, tactics and logistics; current combat support doctrine; and the processes that comprise current combat support. The literature review provided current published information related to the first three investigative questions (13:136). The investigative

questions related to the incorporation of combat support into the tactical environment and the methods whereby operational commanders obtain knowledge of the interaction of combat support on the combat environment were not determined from the literature review. Nor did the literature review determine if the current published information on combat support doctrine, strategy, tactics and logistics was in accord with opinions in the tactical environment. The literature review provided the means for development of combat support doctrine models which were used to formulate the survey questions (13:136).

To adequately answer the investigative questions, opinions from the tactical environment were desired to determine if the information contained in the literature review is in consonance with the tactical environment. Results obtained from the tactical environment in combination with the literature review provided the input that allowed for answering the investigative questions and the problem statement.

A survey was determined to provide the best means for obtaining the desired information with accurate results from the population of concern (1:5). Since the type of information desired was of a judgmental character, the Delphi survey technique was selected (2:29).

The Delphi technique of using experts in the field of concern to obtain data concerning a research question (18:458; 2:3) was used to obtain current information on the

investigative questions. However, the questions concerning how current doctrine is incorporated into the tactical environment and the methods by which operational commanders attain knowledge of combat support doctrine were not documented in the literature review. These investigative questions were to be answered solely from the Delphi survey.

The collected survey results were compared to the combat support doctrine models, as obtained from the literature review, to determine the correlation between the doctrine and what is actually happening in the tactical environment. Additionally, the impact the doctrine has on the tactical environment and the means operational commanders use to obtain knowledge of combat support were extracted from the survey results. The results of the analysis are presented in Chapter IV.

Model Development

Specific combat support doctrine models were developed from the literature review in Chapter II. These models were used in the same way as a theory, hypothesis or proposition (13:32) and, as such, represent relationships among various concepts. Through an understanding of these models, specific survey questions were later developed.

Developed Models

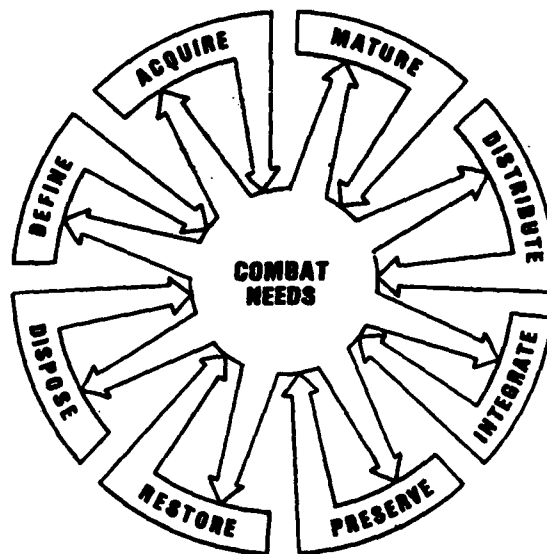
Strategy, Tactics, and Logistics Model. The strategy, tactics and logistics model produced the following relationships:

1. Politics influence a nation's strategy (14:11).
2. Economics influence a nation's strategy (10:8).
3. A nation's industrial base will influence the formulation of a national strategy (12:82; 37:198).
4. The ability of logistics to provide material to the tactician influences the tactical environment (3:6; 11:73)
5. Knowledge of a nation's strategy will influence tactical plan development (12:72).
6. Immediacy is the primary force behind tactics (11:105).
7. Combat support is a measure of the economic willingness of a nation to attain its strategy (12:64).
8. Advance planning for combat support influences the integration of logistics into the tactical environment (12:66).

Combat Support Model. The Combat Support model was derived from Air Force Manual 1-10. This model is composed of the following processes:

- | | |
|----------------|---------------------------|
| 1. Definition | 5. Acquisition |
| 2. Maturation | 6. Distribution |
| 3. Integration | 7. Preservation |
| 4. Restoration | 8. Disposition (19:2-1ff) |

Figure 3 graphically displays these processes and relationships.



Combat Support Model

Figure 3.

(19:2-1)

Components within the definition process are:

1. Quantity and quality of men, equipment, material, and information required (26:15)
2. Transportation requirements (19:10)
3. Construction requirements (19:45)
4. POL requirements (19:57)
5. Communications requirements (19:15)
6. Containerization requirements (19:15)
7. Quantitative methods (12:72)

Components within the acquisition process are:

1. Length of the acquisition time frame (27:5)
2. Complexity of weapon systems now and in the future (27:5; 6:14-15)
3. Lack of a responsive industrial base (27:5)
4. Volume and urgency of requirements during war (34)

Components within the maturation process are:

1. Manpower training (26:16)
2. Test and operational usage of equipment (21:25)
3. Actual combat condition simulation (21:25)
4. Lines of communication between tacticians and logisticians (21:20-29)

Components within the distribution process are:

1. Coordination of the various means of transporting assets
2. Control of the various transportation assets
3. Adequate facilities for receiving the material
4. Material handling equipment
5. Quantitative methods

Components within the integration process are:

1. Interaction between the civilian and military economy (27:10)
2. Interaction between the active and reserve military forces (27:10)
3. Interaction between the deployed forces and the host nation forces (27:10)
4. Interaction between the Armed Services (21:26)
5. Interaction between tacticians and logisticians (21:26)
6. Interaction between the information systems of both deployed and host nation forces (19:13)

Components within the preservation process are:

1. Protection of assets (26:16)
2. Security of assets (34)
3. Provision of basic human needs (34)
4. Construction requirements (19:45)
5. Protection and distribution of POL (19:57)

Components within the restoration process are:

1. Maintenance of equipment in a state of readiness at all times (4:iii)

Components within the disposition process:

1. Unwillingness to divest of concepts, doctrines, policies, functions, organizations, procedures, and weapon systems which are no longer functional (27)
2. Removal of personnel, equipment, and facilities which are not effectively contributing to the combat mission (34)
3. Transportation requirements (34)

4. Construction requirements for facilities to process obsolete assets (34)
5. Survey requirements for nonfunctioning equipment (19:59-61)
6. Cannibalization procedures (19:59-61)

Model for Evaluating Combat Support Doctrine. The

literature review identified the following requirements:

1. Suitability - Will the process help to accomplish the mission, attain the objective, achieve the effect desired? (12:73)
2. Feasibility - Can it be accomplished with the means available? (12:73)
3. Acceptability - Are the consequences acceptable? (12:73)
4. Adequacy - That the scope and concept are sufficient to accomplish the assigned task. (20:II-3)

The developed models indicated a wide variety of components. As an example, the combat support concept of distribution was shown to have a total of five components, evident from the literature review. These models provided the source for constructing the survey questions which dealt with combat support doctrine, its processes, and the relationships between strategy, tactics and logistics. The literature review aided in the development of a scenario and survey questions for determining the opinions of the experts. A copy of the final survey is contained in Appendix B. Appendix C shows the relationship between the models and survey questions.

Delphi Technique

The Delphi technique was chosen as the survey technique due to the lack of available definitive information on the

last two investigative questions (2:2), and the desire to determine correlation between the tactical environment and published literature. The last two questions, dealing with how operational commanders integrate and obtain knowledge of combat support functions, lent themselves readily to use of the Delphi technique. Additionally, as the term combat support has recently (as of 1986) been modified to reflect the definition used in this study, it was assumed that only a relatively small number of personnel would have the knowledge required to answer the survey questions (2:2; 7:16). The Delphi technique, a method to obtain a consensus from a small group of experts, ideally met the requisite requirements (2:2; 7:16). Additionally, obtaining information from the tactical environment on the first three investigative questions dealing with the extremely nebulous terms of strategy, tactics, logistics and combat support was a reasonable use of a panel of experts to obtain data.

The use of the Delphi technique requires a series of iterations where the experts receive the questionnaire, make their responses, the researcher compiles the data, and the researcher sends another copy of the survey complete with the results to the experts for retaking of the survey (2:16; 8:458). The Delphi method normally requires that these iterations continue until a consensus occurs (8:458). However, due to time available for the completion of this research project, only three iterations were accomplished.

Survey Questionnaire Characteristics

The survey questions were constructed to determine answers to the specific investigative questions identified in Chapter I. Appendix D provides a breakdown of the questions by investigative question. Investigative questions one, two, and three provided 53 survey questions. These questions were reflective of the literature review in Chapter II. The purpose of these questions was to determine correlation between the models developed from the literature review and the tactical environment and to aid in answering to the first three investigative questions. The remaining 39 questions were developed to answer the last two investigative questions. In order to assist the survey participant with answering some of the questions, a hypothetical scenario was designed to focus the respondent's attention towards conditions within which combat support doctrine and the multitude of relationships identified are constantly in play.

Each survey participant was asked to answer the survey questions on a seven point semantic differential scale (13:261). By the use of a semantic differential rating scale, a wider range of possible responses was made available to the experts (Figure 4).

| | | | | | | |
|----------------------|---|---|-------------------------------------|---|---|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY DISAGREE | | | NEITHER AGREE NOR DISAGREE | | | STRONGLY AGREE |

Figure 4. Semantic Differential Scale

After the initial writing of the survey questions, pre-testing by one person familiar with combat support doctrine and a research methods instructor was conducted to determine the clarity, validity, and applicability of the survey and how long the survey would take to complete (13:206). As a result of this pre-testing, several minor changes in format and question sequence were made to clarify the survey and to ease survey completion. As noted earlier, the final format of the initial survey is contained in Appendix B. Approximately one hour was required to take the survey.

Expert Panel Selection

Determination of the panel of experts was based primarily on duty assignments within the United States Air Force and Navy as the scope of this study was limited to these two military forces. It was decided that if personnel were assigned to specific taskings within a combat support function by their respective organizations, these personnel were in fact using combat support doctrine and would have the most up to date information on the various relationships indicated by the models (2:4). Selection of Air Force personnel was based primarily from a listing of attendees at the Logistics Strategic Planning Conference. This conference was held in October 1987, and investigated the Logistics Concept of Operations within the Air Force. As this concept fit into the operational definition of combat

support, the participants at this conference should have the operational expertise required. Additionally, four Air Force personnel involved in various educational aspects of combat support doctrine were chosen to provide the academic input into this highly nebulous arena. Naval personnel were primarily officers selected from within the Office of the Deputy Chief of Naval Operations (Logistics). These personnel have been assigned the task of ". . . planning and carrying out the movement and maintenance of forces" (18). As this definition also fit into the operational definition of combat support, personnel assigned to this office would have the expertise required. Two additional Naval personnel were selected to provide the current Naval operational viewpoint of combat support doctrine.

The selection of U.S. Navy and Air Force personnel assigned to jobs within the combat support arena allowed generalization from opinions obtained from the survey. Additionally, these personnel are presently involved with various aspects of combat support doctrine which is currently being implemented, so again, generalization is possible.

Statistical Concepts

Opinion and preference scales are normally considered to be ordinal scales, and as such the use of parametric statistical methods is inappropriate (13:89). Additionally, the normal measurements of central tendency for ordinal

scales are medians and modes, with more reliance placed on the mode for this type of survey. Therefore, a set of statistical techniques was required. These techniques are described here.

The procedure for calculating the median is as follows:

Rank the n measurements in the data set from the smallest to the largest. The smallest will receive rank 1; the next largest, rank 2; . . . ; and the largest, rank n .

1. If the number, n , of measurements is odd, the median is the measurement in the middle of the ranking - i.e., the measurement with rank equal to $(n+1)/2$.

2. If the number, n , of measurements is even, the median is the mean of the two middle measurements in the ranking - i.e., halfway between the measurement ranked $n/2$ and the measurement ranked $(n/2)+1$. [25:64]

The modal measurement, is defined as ". . . the measurement that occurs with greatest frequency in the data set"

(25:58). These two measurements will be used to measure central tendency within the survey. Due to the fact that two independent populations were used to take the survey, i.e., those personnel in the U.S. Navy and those in the U.S. Air Force, a procedure was required to determine if the probability distributions associated with the two sampled populations were equivalent. The procedure selected was the Wilcoxon Rank Sum Test for independent samples. This test was chosen due to the assumption that the data from the survey was ordinal in nature and non-parametric statistical methods should be used. The reason for comparing the probability distributions was to determine if analysis upon the joint population of both Air Force and Navy personnel was possible. The procedure for the test is as follows:

1. Rank the sample observations from both samples as though they were all drawn from the same population. (If measurements have the same values, assign an average of the ranks that would be assigned to the measurements if they were equal but occurred in successive order).
2. Add the ranks of each sampled population and obtain two rank sums, one for each sampled population.
3. Perform the following test to determine if the samples have identical probability distributions.

H_0 : Two sampled populations have identical frequency distributions

H_a : The probability distribution for population A is not the same as the frequency distribution for population B

Test statistic: The rank sum, T , associated with the sample with fewer measurements (if the sample sizes are equal, either rank sum can be used)

Rejection region: $T \geq T_L$, where T_L is the value given by the table in Appendix E for the chosen two-tailed value of .05.

- Assumptions:
1. The two samples are random and independent.
 2. The observations obtained can be ranked in order of magnitude. (Note: No assumptions have to be made about the shape of the probability distributions.) [25:739]

Additionally, a test was needed to investigate the correlation between the survey questions. The use of a non-parametric procedure was again required. The Spearman Rank Correlation Coefficient provides the required procedure where two questions can be evaluated for correlation. The following formula was used:

$$\Theta = \frac{\sum(R_i - \bar{R})(S_i - \bar{S})}{\sqrt{\sum(R_i - \bar{R})^2 \sum(S_i - \bar{S})^2}}$$

[25:769]

where R_i is the rank of the i th x value, S_i is the rank of the i th y value, R and S are the means of the R_i and S_i values respectively, and average ranks are used in the case of ties.

The obtained values of Θ are then evaluated with the following two tailed test.

Ho: $\rho = 0$ (There is no correlation between the ranks)

Ha: $\rho \neq 0$ (There is correlation between the ranks)

Test statistic: Θ , the sample rank correlation (using the above formula)

Rejection region:

$$\Theta < -\rho_{\alpha/2}$$

$$\Theta > \rho_{\alpha/2}$$

where $\rho_{\alpha/2}$ is the value from the table in Appendix F, corresponding to the upper-tail area $\alpha/2$ and n pairs of observations. [25:771]

In order to expedite calculations between the survey questions, two Statistical Analysis System (SAS) programs were developed for rapid and accurate calculations of the Spearman Rank Coorelation Coeficient, median and mode calculations for the entire sampled population, and the Wilcoxon Rank Sums, median and mode calculations for the two sampled populations. These programs are listed in Appendix G.

Analysis Method

The Wilcoxon Rank Sum Test was computed for each question to determine if the two independent populations had the same probability distribution. This was performed to ascertain if it was possible to combine the two populations into one large sample population. This also allowed identification of survey questions in which the two populations had dissimilar distributions. Each question was

also evaluated for modal responses within the two separate sampled populations. If the question had a 70% modal agreement within the sampled population, then the question was considered to have obtained consensus for that population. Next each question was evaluated for a combined population modal response. Again if 70% of the combined population agreed upon a specific modal response for a survey question, the question was considered to have obtained consensus. This was done to help determine if there was a correlation between the models and the survey responses, and to answer the last two investigative questions. Correlation among survey questions identified to one of the five investigative questions was then determined. The use of the Spearman Rank Correlation Coefficient was used for this analysis. If the SAS program calculated a Θ value less than $-\rho_{\alpha/2}$ or greater than $\rho_{\alpha/2}$ as determined by Appendix F, then that pair of questions was determined to have a correlation. If the correlation value was positive, then the correlation was determined to be a direct correlation, and if negative then the correlation is an inverse relationship (25:770). Determination of correlations among survey questions aided in answering the investigative questions. Finally the entire survey was evaluated for overall consensus. If 70% of the survey questions obtained consensus, then the survey was determined to have obtained consensus. This also aided in answering the research question.

Chapter Summary

This chapter developed the methodology that was used with the Delphi technique to determine answers to the research question and investigative questions. The use of models extracted from the literature review to develop the survey questions was provided. The various statistical techniques to determine modes, medians, Wilcoxon Rank Sums, and Spearman Rank Correlation Coefficients were stated. Additionally, the process that would be used for analyzing the data was explained. In Chapter IV, the results of the collection process will be presented.

Chapter IV. Analysis and Findings

Chapter Overview

This chapter examines the findings and analysis of the data obtained during the research process. First, general information is presented concerning the data collection process. Next, there is a table displaying the demographics of the survey panel.

The chapter continues with an analysis of the survey results compiled during the three rounds using the Delphi technique. First, the overall success of the survey is discussed. Then, each set of survey questions related to a specific investigative question is analyzed in accordance with the methodology outlined in Chapter III, with the results provided in the Appendix N and O. The findings reached for each investigative question is then provided, followed by summary comments for each investigative question.

Data Collection Process

Round One. On December 18, 1987 the first Delphi round consisting of 30 surveys was sent out to the survey panel. The survey participants were asked to complete and return the survey within ten days. Due to the holiday time frame and associated anticipated delays, this round was terminated January 31, 1988. During this round, panel demographics

were obtained and are displayed in Table 1. Twenty-four of the panel members responded prior to the termination of the first round; fifteen from the U.S. Air Force and nine from the U.S. Navy. Two survey results were received after the first round was terminated and survey responses calculated. Thus a total of twenty-six surveys were received for this first round, but only the first twenty-four were used for determination of statistical results. It was noted that, in some cases, survey respondents failed to answer all of the survey questions; either they did not understand the survey question, or they skipped over the question for some unknown reason.

It had been previously decided that determination of consensus would, in all cases, be based upon the number of respondents. Thus, if there were fifteen responses to a survey question, 11 respondees with the same response would be required to obtain consensus. This procedure was followed in all cases. The responses to the survey questions for round one are contained in Appendix H, with the comments submitted by the respondents contained in Appendix I.

Round Two. After the compilation of the comments and statistical calculations had been completed, the second round of the survey was prepared. This survey contained the median and modal responses for each survey question, as well as the compiled comments for each question. Additionally,

the response the respondent had made from the first round was indicated on the survey. This allowed respondents to compare their response to the question with the group response. This second round was mailed on February 19, 1988 to all thirty panel members. The panel members were asked to return the completed survey by March 20, 1988.

Again, additional time was given to allow respondents the time to complete the survey. Round two was terminated on April 15, 1988. Twenty-one of the panel members responded with the second round; twelve from the U.S. Air Force and nine from the U.S. Navy. The responses to the survey questions for round two are contained in Appendix J, with the comments submitted by the respondents contained in Appendix K.

Round Three. Again the compilation of comments and calculation of the applicable statistics was conducted. The third round of the survey was prepared and mailed to all thirty panel members on May 6, 1988. The panel members were asked to return a completed survey by May 27, 1988. Again, additional time was given to allow respondents the time to complete the survey. Round three was terminated on June 16, 1988. Twenty-one of the panel members responded with the third round; eleven U.S. Air Force and ten U.S. Navy. The responses to the survey questions for round three are contained in Appendix L, with the comments submitted by the respondents contained in Appendix M.

Table 1
Panel Demographics

| Res. # | Ser. | Current Rank | Ed. Level | Logistics Experience | Tactics Experience | Current Position |
|--------|------|--------------|-----------|----------------------|--------------------|------------------|
| 1 | USAF | 05 | Master | 8 years | 0 years | Logistics |
| 2 | USAF | Ret. GM15 | ABD | 48 years | 3 years | Logistics |
| 3 | USN | 04 | Master | 12 years | 0 years | Logistics |
| 4 | USN | 05 | Master | 1 year | 5 years | Logistics |
| 5 | | | | | | |
| 6 | USN | 04 | Master | 6 years | 0 years | Logistics |
| 7 | USN | 05 | Master | 9 years | 11 years | Logistics |
| 8 | | | | | | |
| 9 | USN | 05 | Master | 14 years | 0 years | Logistics |
| 10 | USN | 05 | Master | 3 years | 0 years | Logistics |
| 11 | USN | 04 | Master | 4 years | 0 years | Logistics |
| 12 | USN | 04 | Master | 6 years | 5 years | Planning |
| 13 | USN | 05 | Master | 20 years | 0 years | Logistics |
| 14 | | | | | | |
| 15 | USN | 04 | Bachelor | 0 years | 8 years | Tactics |
| 16 | USN | 05 | Master | 18 years | 0 years | Logistics |
| 17 | USAF | 05 | Master | 20 years | 8 years | Logistics |
| 18 | USAF | 05 | Master | 17 years | 0 years | Logistics |
| 19 | USAF | 05 | Master | 0 years | 9 years | Planning |
| 20 | USAF | 05 | Master | 20 years | 0 years | Logistics |
| 21 | USAF | 05 | Master | 18 years | 0 years | Logistics |
| 22 | USAF | 04 | Master | 1 year | 9 years | Planning |
| 23 | USAF | 04 | Master | 16 years | 0 years | Planning |
| 24 | | | | | | |
| 25 | USAF | 04 | Master | 13 years | 0 years | Planning |
| 26 | USAF | 05 | Master | 20 years | 0 years | Logistics |
| 27 | USAF | 05 | Master | 20 years | 6 years | Planning |
| 28 | USAF | 03 | Master | 9 years | 0 years | Logistics |
| 29 | USAF | GS-12 | Bachelor | 10 years | 0 years | Acquisition |
| 30 | USAF | 05 | Doctor | 20 years | 2 years | Logistics |

Overall Survey Consensus

The survey as a whole failed to reach consensus with only a little over 36% of the survey questions obtaining consensus. This indicates that the combined population lacks concurrence on the various features within strategy, tactics, logistics, and combat support. The Navy population

obtained consensus on a little over 43% of the survey questions versus the little over 38% for the Air Force population.

Survey Results Analysis

The statistical calculations for the survey responses related to the investigative questions are contained in Appendices N and O. Appendix N contains the mode, consensus determinations and combined population results for the survey questions. The results are grouped by investigative question for ease of reference. Appendix O contains the Spearman Correlation Coefficients for those survey questions that displayed correlation during the Delphi process. Again they are grouped by investigative question for ease of reference.

Investigative Question #1 Analysis

The first investigative question was to determine the relationships between strategy, tactics, and logistics. A summary of the survey questions which obtained consensus is provided in Table 2.

Air Force Population. U.S. Air Force personnel were unable to obtain consensus on any survey question concerning relationships between strategy, tactics and logistics.

Table 2

| Investigative Question #1 Survey Questions with Consensus Population | Consensus Obtained on Survey Questions | | | |
|--|--|---|---|---|
| | 1 | 3 | 4 | 6 |
| U.S. Air Force | No Consensus Obtained | | | |
| U.S. Navy | X | X | X | X |
| Combined | X | X | | |

Naval Population. Naval personnel obtained consensus on four of the six survey question identified to investigative question number one.

They agreed that development of strategy was based on both political and economic requirements. Naval personnel slightly agreed that combat support does have an impact on the timing and scope of obtaining strategic goals, and that the primary purpose of tacticians was to formulate operational plans, regardless of other considerations. They were unable to obtain consensus on whether strategic plans are limited by the current available industrial base, and whether tactics is limited by the availability of material in the available supply system.

Combined Population. For all of the above survey questions, combination of the U.S. Air Force and U.S. Navy populations were allowable as determined by the Wilcoxon Rank Sum test. The combined population obtained consensus on only two of the six survey questions identified with investigative question number one.

The combined population agreed that development of strategy is based primarily upon economic and political requirements. Additionally, the combined population slightly agreed that combat support has an impact on the scope of obtaining operational goals. They were unable to obtain consensus on whether combat support dictates the timing of obtaining the desired goal. However, over 80% of the respondents agreed to some extent that combat support considerations dictate the timing of obtaining desired goals. The combined population was not able to obtain consensus on whether the primary purpose of tacticians was to formulate operational plans regardless of other considerations. But, over 61% of the population agreed, to some extent, that the primary purpose of tacticians was to formulate operational plans regardless of other considerations. They were unable to obtain consensus on whether strategic plans are limited by the current available industrial base, or whether tactics is limited by the availability of material in the available supply system. However, over 66% of the respondents disagreed to some extent that the industrial base has an impact on strategic plans. It was noted that over 80% of the population had some degree of agreement that tactics is impacted by the availability of material within the supply system.

Only one question displayed correlation with another. Question three was determined to be correlated with question four, which indicated a positive relationship between the

impact of combat support on strategic goals and the tacticians primary purpose of formulating operational plans. This correlation is in accord with the findings from the literature review. Question three obtained consensus, whereas question four did not. The lack of consensus on question four indicates a lack of concurrence on specifics within the relationships of strategy, tactics and logistics.

Findings For Investigative Questions #1. U.S. Navy personnel demonstrated a higher level of concurrence on the relationships within strategy, tactics and logistics; as determined by the literature review, than U.S. Air Force personnel. However, the lack of a combined population consensus on four of the strategy, tactics and logistics relationships determined from the literature review indicates a overall lack of concurrence on these relationships as determined from the literature review. This was further emphasized by the overall lack of correlation among the survey questions. Additionally, the four survey questions which failed to obtain consensus indicated varying degrees of agreement on three of the survey questions and for one survey question disagreement with the relationship as determined from the literature review.

In general, personnel in the tactical environment indicated varying degrees of agreement with the relationships among strategy, tactics, and logistics as determined from the literature review.

Investigative Question #2 Analysis

The second investigative question was to determine what is the current combat support doctrine. A summary of the survey questions which obtained consensus is provided in Table 3.

Table 3

| Investigative Question #2 Survey Questions with Consensus | | | | | | |
|---|--|-----|-----|-----|-----|----|
| Population | Consensus Obtained on Survey Questions | | | | | |
| | 10B | 10C | 10D | 10F | 10H | 15 |
| U.S. Air Force | | X | X | X | | X |
| U.S. Navy | X | X | | X | X | |
| Combined | | X | | X | | |

Air Force Population. U.S. Air Force personnel obtained consensus on four of the nine survey questions identified with investigative question number two.

Air Force personnel slightly agreed that combat support is the interaction between logistics and tactics. They also slightly agreed that combat support plans are composed of: requirements for insuring protection of men and equipment; integration requirements for men and equipment to form a functioning combat unit; and maintenance requirements under diverse field conditions. Air Force personnel were able to obtain concurrence on three of the requirements for combat support plans as identified through

the literature review. They did not obtain consensus on whether combat support plans are composed of: descriptions of men and equipment, training requirements for men and equipment or requirements for men and equipment. Neither were they able to obtain consensus on whether combat support plans are composed of: transportation requirements for men and equipment, and requirements for removal actions of unneeded men and equipment.

Navy Population. U.S. Navy personnel obtained consensus on four of the nine survey questions identified with investigative question number two.

They slightly agreed that combat support plans are composed of: requirements for the development and training of men and equipment for combat; requirements for insuring protection of men and equipment during a conflict; maintenance requirements for a functioning combat unit under diverse field conditions; and removal actions required for unneeded men and equipment, to make way for needed men and equipment. U.S. Navy personnel obtained concurrence on four of the eight requirements for combat support plans as identified by the literature review. They did not obtain consensus on whether combat support plans are composed of: descriptions of men and equipment; or requirements for men and equipment. Neither were they able to obtain consensus on whether combat support plans are composed of: transportation requirements for men and equipment, or required removal actions of unneeded men and equipment.

Combined Population. For all questions, combination of the U.S. Air Force and U.S. Navy populations was allowable as determined by the Wilcoxon Rank Sum Test. The combined population obtained consensus on two of the nine survey questions identified with investigative question number two.

For the combined population it was slightly agreed that combat support plans are composed of requirements for insuring protection of men and equipment during a conflict, and maintenance requirements for a functioning combat unit under diverse field conditions. This indicates concurrence by the combined population on these two components of combat support plans identified through the literature review.

Both Air Force and Navy personnel indicated a lack of concurrence on whether combat support plans are composed of: descriptions and amounts of men and equipment required, requirements for men and equipment for a combat unit, or transportation requirements for men and equipment during a combat situation. In all three cases, the literature review documented these components as being within combat support plans.

With the exception of two survey questions, over 80% of the combined population showed varying degrees of agreement with those survey questions which failed to obtain consensus. Seventy-six percent had varying degrees of agreement that combat support plans contain requirements for development and training of men and equipment for combat, while 71% had varying degrees of agreement that these plans

had actions identified for removal of unneeded men and equipment, to make way for needed men and equipment.

Correlation among the survey questions concerning the composition of combat support plans was high (See Appendix O, Table 2). In no case was a question not related to at least one other question. Normally, each survey question was related to at least two other survey questions, with some questions displaying correlation with five other survey questions. This high degree of correlation indicates that both Naval and Air Force personnel are aware of the interrelationships among components of combat support, and is a confirmation of the literature review. The survey question concerning combat support as an interaction between tactics and logistics did not display any correlations on the third round. It was interesting to note that during the second Delphi round, this question had correlation with four of the combat support requirements.

Findings For Investigative Question #2. Both the Air Force and Navy have obtained some concurrence concerning requirements within combat support plans as determined from the literature review, which indicates some concurrence concerning combat support doctrine by the two populations. However, the two populations did not obtain consensus on identical combat support requirements in all cases. Additionally, there was a lack of concurrence by both populations on three of the requirements within combat support plans as indicated by the literature review. These

requirements were that combat support plans are composed of: descriptions and amounts of men and equipment required, requirements for men and equipment for a combat unit, and transportation requirements for men and equipment during a combat situation. But these survey questions, though failing to obtain consensus, displayed varying degrees of agreement by the combined population. Finally, the Air Force obtained concurrence on combat support being the interaction between tactics and logistics. Additionally, the high degree of correlation among the combat support questions indicates that both Air Force and Navy personnel are aware of the interrelationships within combat support.

Though not obtaining a high level of consensus, both populations had varying degrees of agreement with requirements for combat support plans as identified through the literature review.

Investigative Question #3 Analysis

The third investigative question was to determine the components which comprise current combat support doctrine. A summary of the survey questions which obtained consensus is provided in Table 4.

Air Force Population. U.S. Air Force personnel obtained consensus on 14 of the 38 survey questions identified with investigative question number three.

Table 4

| Investigative Question #3 Survey Questions with Consensus | | | | | | | | | | | |
|---|--|----|----|----|----|----|----|----|----|----|----|
| Population | Consensus Obtained on Survey Questions | | | | | | | | | | |
| | 17 | 19 | 21 | 22 | 23 | 26 | 27 | 28 | 30 | 31 | 33 |
| U.S. Air Force | X | | | X | | | X | X | | X | X |
| U.S. Navy | | X | X | | X | X | X | | X | X | |
| Combined | | | | | | | X | | | X | |
| | 35 | 37 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 55 |
| U.S. Air Force | | X | X | | | | X | X | | X | |
| U.S. Navy | X | X | | X | X | X | | | X | X | X |
| Combined | X | X | X | | | | | | | X | X |
| | 56 | 58 | 69 | 73 | | | | | | | |
| U.S. Air Force | | X | X | X | | | | | | | |
| U.S. Navy | X | X | X | X | | | | | | | |
| Combined | | X | X | X | | | | | | | |

Air Force personnel were able to obtain consensus on the two survey questions which were identified as components of the definition process. They agreed that combat support plans must have construction requirements for required facilities. This agreement indicates that Air Force personnel are aware that one of the components within the definition process is quantification of equipment, men, and material required for construction, which is in accord with the literature review. The consensus of neither agreeing nor disagreeing with the survey question concerning the functional areas of a conflict, indicates that Air Force

personnel have not decided on whether these processes are operative during the conflict. The literature review indicated that the processes of distribution, restoration, definition, and preservation are operative during the conflict and thus; the definition process would require quantitative type information on these processes to develop a combat support doctrine.

Air Force personnel obtained consensus on two components of the acquisition process. They agreed that acquisition activities will not function normally within the combat support arena during time of war, and they slightly agreed that prepositioning ties up supply assets making them unavailable for other uses. They displayed a lack of concurrence on whether prepositioning of material provides immediate availability of material required by deploying forces, and that acquisition functions will be hampered by the complexity of the modern weapons systems and will not be able to respond rapidly during the conflict. The literature review indicated that the acquisition process would not function normally within the combat support arena during time of war, due partially to the complexity of the modern weapons systems. To solve this problem, prepositioning forces have been established to maintain assets available to compensate for the lack of a responsive acquisition process and industrial base to provide needed material at the volume and urgency required. Air Force personnel responses indicated a general agreement with the end results of these

components within the acquisition process, but lacked concurrence either pro or con concerning the causal components within the acquisition process.

Air Force personnel obtained consensus on only one of the three component questions associated with the maturation process. The literature review indicated a concern that current simulations were not aiding in the maturation process of men and equipment, with which Air Force personnel agreed. The literature review also indicated that components of the maturation process should include development of men and equipment prior to the conflict. Air Force personnel lack concurrence on whether this is happening or not. Additionally, the literature review indicated that logisticians should become aware of the capabilities of the tactician. Air Force personnel had a lack of consensus on whether this should be done.

Air Force personnel obtained consensus on one of the six survey questions concerning components of the distribution process. Air Force personnel agreed that foreign relations have an impact on distribution processes and concepts, which is in agreement with the literature review component of obtaining adequate facilities for receiving material. They lacked concurrence on whether: distribution of assets provides the means whereby preservation and restoration are accomplished, separation of assets causes distribution problems and impacts on the method of distributing assets, and whether common supply

items should be located in forward echelon areas to facilitate ease of obtaining items by all forces in the area. They also lacked agreement on whether containerization processes should be improved with specially constructed vehicles being used to provide transportation services, and whether distrust of the distribution process cause operational commanders to overrequisition material from supply points.

U.S. Air Force personnel obtained consensus on one of the three survey questions concerning components within the integration process. They agreed that the management style of the operational commander affects the success of the mission. The literature review strongly indicates that sound management by the operational commander with the various types of interaction required is paramount if integration is to be accomplished properly. The management style of the operational commander will affect the integrative process, and Air Force personnel mutually understand and agree. The literature also supports the component of commonality between equipment and repair parts. The lack of concurrence by Air Force personnel indicates that there is varying degrees of agreement concerning the integration process and its purpose. Finally, the literature review emphasizes that men and equipment must be integrated together to form a synchronized warfighting unit. Air Force personnel lack concurrence on whether the complex weapons systems of today hinder protection of men and

equipment, which could prevent proper integration of men, equipment and weapon system.

Air Force personnel were able to obtain consensus on three of the seven survey questions concerning components of the preservation process. Air Force personnel indicated a firm concurrence on components within the preservation process as determined from the literature review. They had slight agreement that during the initial phases of the conflict, initial requirements will be primarily in the preservation of men and equipment; that the preservation processes will rely upon initial construction capabilities; and that protection of basic human requirements will require extensive expenditures of manpower and money. From the literature review, dispersal of fighting units into small functional units; use of special systems, a thorough understanding of all sea-ground-air threats, and understanding of protection concepts all aid in the preservation process. There was a lack of concurrence on whether these are part of preservation.

Consensus was obtained by Air Force personnel on two of the seven survey questions concerning components of the restoration process. Air Force personnel agreed that restoration and maintenance of information functions will be necessary to ensure that combat support will be accomplished correctly, and they slightly agreed that current repair jobs are so complex that fully capable equipment will decrease rapidly during a conflict. These are reflective of the

literature review component concerning the maintaining of equipment in a state of readiness at all times. Inherent within this component is the assumption that maintenance during the conflict will be at the place and time required. Air Force personnel lack concurrence on whether: maintainability acknowledges maturation of equipment, prepositioning of equipment aids in restoring equipment quickly during conflict, and whether restoration process will be accomplished at or near the forward battle line. Additionally, they lacked concurrence on whether nonfunctional equipment must quickly be delivered to the appropriate level of repair; and whether when equipment and men are dispersed, the ability to restore and maintain assets is directly diminished as a function of distance from facilities. The above components were all referred to in the literature review.

Air Force personnel obtained consensus on two of the six survey questions concerning components of the disposition process. The literature review indicated that removal of degraded equipment during the conflict will require understanding of cannibalization processes, and that constant communication with allies and their desires regarding disposal of assets will increase during the conflict, both of which Air Force personnel slightly agreed. However, the literature review also indicated that: removal of nonfunctioning men and equipment from the combat zone is a necessary aspect of combat support; removal of unneeded

men and equipment might require a significant portion of initial distribution activities; and that the combat worth of a specific asset, be it men or equipment, will be the determining factor for allowing it to remain in the conflict area. The literature review also indicated that peacetime methods of disposal, as well as control over them will disappear during the conflict. Air Force personnel indicated a lack of concurrence on the above components within the disposition process.

Naval Population. U.S. Naval personnel obtained consensus on 18 of the 38 survey questions identified with investigative question #3.

Naval personnel were able to obtain consensus on only one of the survey questions concerning components of the definition process. They obtained consensus of neither agreeing nor disagreeing with the survey question concerning the functional areas of a conflict, which indicates that Navy personnel have not decided on whether these processes are operative during the conflict. The literature review indicated that the processes of distribution, restoration, definition, and preservation are operative during the conflict and thus the definition process would require quantitative type information on these processes to develop a combat support doctrine. The literature review indicated that one of the components within the definition process is the quantification of equipment, men, and material required for construction. Naval personnel indicated a lack of

concurrence on whether construction requirements must be incorporated into combat support plans to provide for required facilities

Naval personnel were able to obtain consensus on two of the survey questions concerning components of the acquisition process. These personnel slightly agreed that prepositioning provides immediate availability of material required by deploying forces, and that prepositioning ties up supply assets making it unavailable for other needs. They indicated a lack of concurrence on whether acquisition activities will not function normally within the combat support arena during time of war, and whether acquisition functions will be hampered by the complexity of the modern weapons systems and will not be able to respond rapidly during the conflict. The literature review indicated that the acquisition process would not function normally within the combat support arena during time of war, due partially to the complexity of the modern weapons systems. To solve this problem, prepositioning forces have been established to maintain assets available to compensate for the lack of a responsive acquisition process and industrial base to provide needed material at the volume and urgency required. Naval personnel have obtained consensus on these solution components within the acquisition process

U.S. Navy personnel were able to obtain consensus on only one of the three survey questions concerning components of the maturation process. The literature review indicated

a concern that current simulations were not aiding in the maturation process of men and equipment, with which Naval personnel agreed. The literature review also indicated that components of the maturation process should include development of men and equipment prior to the conflict to have better prepared men and equipment. Navy personnel lack concurrence on whether this is happening or not. Additionally, the literature review indicated that logisticians should become aware of the capabilities of the tactician. Navy personnel were unable to either agree or disagree on whether this should be done.

Naval personnel were able to obtain consensus on only one of the six survey questions concerning components of the distribution process. They agreed that separation of assets causes distribution problems and impacts on the method of distributing assets. However, they lacked concurrence on whether distribution of assets provides the means whereby preservation and restoration are accomplished; that foreign relations has an impact upon distribution processes and concepts; and that common supply items should be located in forward echelon areas to facilitate ease of obtaining items by all forces in the area. They also lacked agreement on whether containerization process should be improved with specially constructed vehicles being used to provide transportation services, and whether distrust of the distribution process cause operational commanders to overrequisition material from supply points.

Navy personnel were able to obtain consensus on all three survey questions concerning components of the integration process. They agreed that the management style of the operational commander affects the success of the mission. The literature review strongly indicates that sound management by the operational commander with the various types of interaction required is paramount if integration is to be accomplished properly. The management style of the operational commander will affect the integrative process, and Navy personnel mutually understand and agree. The literature also supports a component of commonality between equipment and repair parts. The consensus by Navy personnel indicates that they slightly agree with this component of the integration process and its purpose. Finally, the literature review emphasizes that men and equipment must be integrated together to form a synchronized warfighting unit. Navy personnel slightly agreed that the complex weapons systems of today hinder protection of men and equipment, which could prevent proper integration of men, equipment and weapon systems.

Naval personnel obtained consensus on four of the seven survey questions concerning components of the preservation process. This indicates a high level of concurrence on the components within the preservation process. They slightly agreed that: separation of men and equipment into small functional units will provide the largest degree of protection; that preservation processes during the conflict

will rely heavily upon initial construction capabilities; that protection of basic human requirements will require extensive expenditures of manpower, and money, and they agreed that a thorough understanding of all sea-ground-air threats was mandatory in the design of protection plans. From the literature review, use of special systems, and understanding of protection concepts are both components of the preservation process. Additionally, the literature review supported that during the initial phases of the conflict, initial requirements will be primarily in the preservation of men and equipment. Naval personnel failed to obtain consensus on whether these components were applicable to the preservation process.

U.S. Naval personnel obtained consensus on two of the seven survey questions concerning components of the restoration process. These personnel slightly agreed that prepositioning aids in restoring equipment quickly in conflict, and that dispersal of men and equipment causes the ability to restore and maintain assets to be diminished directly as a function of distance from facilities. These are reflective of the component obtained from the literature review concerning the maintaining of equipment in a state of readiness at all times. Inherent within this component is the assumption that maintenance during the conflict, will be at the time and place required. These personnel failed to obtain consensus on whether: maintainability acknowledges maturation of equipment, restoration and maintenance of

information functions will be necessary to ensure that combat support will be accomplished correctly, and whether restoration process will be accomplished at or near the forward battle line. Additionally, they lacked concurrence on whether nonfunctional equipment must quickly be delivered to the appropriate level of repair, and whether current repair jobs are so complex that availability of fully capable equipment will decrease rapidly during a conflict.

Naval personnel obtained consensus on four of the six survey questions concerning components of the disposition process. The literature review indicated that removal of nonfunctioning men and equipment is a necessary aspect of combat support, with which Naval personnel agreed. They slightly agreed that: removal of unneeded men and equipment might require a significant portion of initial distribution activities; that the combat worth of a specific asset, men or equipment, will be the determining factor for allowing it to remain in the combat area; and slightly agreed that peacetime methods of disposal will disappear during the conflict. These were areas indicated from the literature review as components within the disposition process. Additionally, the literature review indicated that removal of degraded equipment during the conflict will require understanding of cannibalization processes, and that constant communication with allies and their desires regarding disposal of assets will increase during the conflict.

Combined Population. For all questions, combination of the U.S. Air Force and U.S. Navy populations was allowable as determined by the Wilcoxon Rank Sum test. The combined population obtained consensus on ten of the survey questions identified with investigative question number three.

The combined population obtained consensus on one of the survey questions concerning components of the definition process. The combined population neither agreed nor disagreed that the conflict would be composed of the functional areas of distribution, restoration, definitions and preservation. The consensus of neither agreeing nor disagreeing with the survey question concerning the functional areas of a conflict, indicates that the combined population has not decided on whether these processes are operative during the conflict. They indicated a lack of consensus on whether construction requirements must be incorporated into combat support plans to provide for required facilities. However, 100% of the respondents indicated varying degrees of agreement that construction requirements must be incorporated into combat support plans.

The combined population obtained consensus on one of the survey questions concerning components of the acquisition process. This population slightly agreed that prepositioning ties up supply assets making them unavailable for other uses. They indicated a lack of concurrence on whether acquisition activities will function normally within

the combat support arena during time of war, and whether acquisition functions will be hampered by the complexity of the modern weapons systems and will not be able to respond rapidly during the conflict. They also indicated a lack of concurrence on whether prepositioning of material provides immediate availability of material required by deploying forces. For all three survey questions which failed to obtain consensus, over 80% of the respondents indicated varying degrees of agreement. One hundred percent of the respondents indicated varying degrees of agreement that the acquisition activities will not function normally within the combat support arena during time of war.

The combined population was able to achieve consensus on only one of the survey questions concerning the maturation process. They agreed that the practice of using men and equipment in a combat simulation falls short of incorporating the realities that will be seen during a real conflict. They indicated a lack of concurrence concerning whether development of men and equipment will happen prior to a conflict, resulting in better prepared men and equipment, and whether it is necessary that the logistician become aware of the capabilities of the tactician. However, 100% of the respondents indicated varying degrees of agreement concerning the need for the logistician to become aware of the capabilities of the tactician. Additionally, 52% of the respondents neither agreed nor disagreed that

development of men and equipment will happen prior to a conflict, resulting in better prepared men and equipment.

The combined population was not able to obtain consensus on any of the survey questions concerning components of the distribution process. They lacked concurrence on whether: distribution of assets provides the means whereby preservation and restoration are accomplished, foreign relations has an impact upon distribution processes and concepts, and whether common supply items should be located in forward echelon areas to facilitate ease of obtaining items by all forces in the area. They also lacked agreement on whether containerization process should be improved with specially constructed vehicles being used to provide transportation services, and whether distrust of the distribution process cause operational commanders to over requisition material from supply points. Additionally they lacked concurrence on whether separation of assets causes distribution problems and impacts on the method of distributing assets. Only 47% of the respondents had varying degrees of agreement that distribution of assets provides the means whereby preservation and restoration are accomplished, with 42% neither agreeing nor disagreeing. Fifty-two percent of the respondents had varying degrees of agreement that containerization processes should be improved with specially constructed vehicles being used to provide transportation services, with 19% showing varying degrees of disagreement. Sixty-six percent of the respondents had

varying degrees of agreement that common supply items for combat units should be centrally located in forward echelon areas to facilitate ease of obtaining items by all forces in the area, with 19% showing varying degrees of disagreement. Over 80% of the respondents had varying degrees of agreement that: separation of assets causes distribution problems and impacts on the method of distributing assets, and that distrust of the distribution process causes operational commanders to overrequisition materiel from supply points. One hundred percent of the respondents had varying degrees of agreement that foreign relations has a impact upon distribution processes and concepts.

The combined population obtained consensus on one of the survey questions concerning the components of the integration process. They agreed that the management style of the operational commander will affect the success of the mission. They displayed a lack on concurrence on whether integration ensures maximum commonality between equipment and repair parts in the field, and whether protection of men and equipment will be hindered by the complexity of current weapons systems. However, 76% of the respondents indicated varying degrees of agreement that integration insures commonality between equipment and repair parts in the field, and over 80% of the respondents indicated varying degrees of agreement that protection of men and equipment will be hindered by the complexity of current weapons systems.

The combined population was able to obtain consensus on three of the seven survey questions concerning the preservation process. They agreed that a thorough understanding of sea-ground-air threats is mandatory in order for the design of protection plans. Additionally, they slightly agreed that preservation processes during the conflict will rely heavily upon initial construction capabilities, and that the protection of basic human requirements will require extensive expenditure of manpower and money. The combined population indicated a lack of concurrence on whether during the initial phases of the conflict, initial requirements will be primarily in the preservation of men and equipment; and whether separating men and equipment into small functional units will provide the largest degree of preservation during the conflict. Additionally, they lacked concurrence on whether the use of special systems and platforms will enhance the protection capabilities of combat units, or whether protection of men and equipment will be hindered by the complexity of current weapons systems. However, over 80% of the respondents indicated varying degrees of agreement that separating men and equipment into small functional units will provide the largest degree of preservation during the conflict. Seventy-six percent of the respondents indicated varying degrees of agreement that during the initial stages of the conflict, initial requirements will be primarily in the preservation of men and equipment, and 71% of the respondents

indicated varying degrees of agreement that protection of men and equipment will be hindered by the lack of adequate protection concepts. Finally, only 61% of the respondents indicated varying degrees of agreement that a use of special systems and platforms will enhance the protection capabilities of combat units.

The combined population obtained consensus on two of the survey questions concerning components of the restoration process. These personnel agreed that during periods of conflict, restoration and maintenance of information functions will be necessary to ensure that combat support will be accomplished correctly. Additionally, they slightly agreed that when men and equipment are dispersed the ability to restore and maintain assets is directly diminished as a function of distance from facilities. They lacked concurrence on whether: maintainability acknowledges maturation of equipment, prepositioning of equipment aids in restoring equipment quickly during conflict, and whether restoration process will be accomplished at or near the forward battle line. Additionally, they lacked concurrence on whether nonfunctional equipment must quickly be delivered to the appropriate level of repair, and whether current repair jobs are so complex that availability of fully capable equipment will decrease rapidly during a conflict. However, for the majority of the survey questions which failed to obtain consensus over 80% of the respondents indicated varying

degrees of agreement with statements concerning the restoration process as determined from the literature review. One hundred percent of the respondents indicated varying degrees of agreement that maintainability acknowledges maturation of equipment. However, 57% of the respondents neither agreed nor disagreed that the restoration process will happen at or near the forward battle line. This would seem to indicate that personnel are not sure where restoration of men and equipment will take place.

The combined population obtained consensus on only one survey question concerning components of the disposition process. The population slightly agreed that removal of degraded equipment during the conflict would require understanding of the cannibalization process. They indicated a lack of concurrence on whether: removal of nonfunctioning men and equipment from the combat zone is a necessary aspect of combat support; removal of unneeded men and equipment might require a significant portion of initial distribution activities; and whether the combat worth of a specific asset, be it men or equipment, will be the determining factor for allowing it to remain in the conflict area. They also lacked concurrence on whether peacetime methods of disposal, as well as control over them will disappear during the conflict. Additionally, they indicated a lack of concurrence on whether constant communication with allies and their desires regarding disposal of assets will increase during the conflict. Over 80% of the respondents

indicated varying degrees of agreement that: removal of unneeded men and equipment might require a significant portion of initial distribution activities; the combat worth of a specific asset, be it man or equipment, will be the determining factor for allowing it to remain in the conflict area; and that peacetime methods of disposal as well as control over them will disappear during the conflict. Seventy-six percent of the respondents indicated varying degrees of agreement that constant communication with allies and their desires regarding disposal of assets will increase during the conflict, and 100% of the respondents indicated varying degrees of agreement that removal of non-functioning men and equipment from the combat zone is a necessary aspect of combat support.

Correlation among the survey questions was high (See Appendix O, Table 3). Only three of the 38 questions were not correlated with some other question. Normally, each question was related to at least two other survey questions, with some questions displaying correlation with seven other survey questions. This high degree of correlation among components of the eight combat support processes indicates that both Air Force and Naval personnel are aware of the interrelationships among the components of combat support processes.

Findings For Investigative Question #3. The Navy population obtained consensus on only 50% of the survey questions; the Air Force population obtained consensus on

only 37% of the survey questions; and the combined population obtained consensus on only 26% of the survey questions, which indicates a significant lack of concurrence on the components within combat support processes. However, for twelve of the survey questions which failed to obtain consensus, over 80% of the respondents had varying degrees of agreement with the statement as determined from the literature review. On an additional six survey questions 100% of the respondents had varying degrees of agreement with the statement as determined from the literature review. However, for six of the survey questions, less than 76% of the respondents indicated varying degrees of agreement. These six questions concerned whether: common supply items should be centrally located in forward echelon areas to facilitate ease of obtaining items by all forces in the area; containerization processes should be improved with specially constructed vehicles being used to provide transportation services; integration insures maximum commonality between equipment and repair parts in the field and whether during the initial phases of the conflict, initial requirements will be primarily in the preservation of men and equipment. The remaining two questions were whether protection of men and equipment will be hindered by the lack of adequate protection concepts, and whether constant communication with allies and their desires regarding disposal of assets will increase during the conflict. Additionally, the combined population was unsure

if: development of men and equipment will happen prior to a conflict, resulting in better prepared men and equipment; distribution of assets provides the means whereby preservation and restoration are accomplished; use of special systems and platforms will enhance the protection capabilities of combat units; and whether the restoration process will be accomplished at or near the forward battle line. The degree of correlation among the survey questions indicates that both the U.S. Air Force and U.S. Navy populations are aware of the multitude of interrelationships among the components within combat support processes.

The combined population indicated either consensus or varying degrees of agreement on 75% of the components identified through the literature review. This indicates a level of agreement by personnel in the tactical environment with the components determined through the literature review.

Investigative Question #4 Analysis

The fourth investigative question was to determine how current doctrine becomes incorporated into the tactical environment. A summary of the survey questions which obtained consensus is provided in Table 5.

Air Force Population. The Air Force population obtained consensus on ten of the 22 survey questions concerning how current combat support doctrine is incorporated into the tactical environment.

Table 5

Investigative Question #4 Survey Questions with Consensus

| Population | Consensus Obtained on Survey Questions | | | | | | | | | |
|----------------|--|----|----|----|----|----|----|----|----|---|
| | 2 | 8 | 42 | 43 | 44 | 45 | 59 | 60 | 61 | |
| U.S. Air Force | | X | | | X | | X | X | | |
| U.S. Navy | X | | X | X | X | X | X | | | X |
| Combined | X | | | | X | | X | X | X | |
| | 62 | 63 | 64 | 66 | 75 | 76 | 77 | 78 | 79 | |
| U.S. Air Force | | X | X | X | | X | X | X | | |
| U.S. Navy | X | | | | X | | X | | | X |
| Combined | X | X | X | | X | | X | | | X |

Air Force personnel agreed that the strategic goal exerts a strong influence on the acceptance of a combat support plan, with the operational experiences of the operational commander playing a major part in the acceptance of the combat support plan. Additionally, they agreed that an understanding of the expected conflict area must include information on manpower requirements, and information on equipment requirements. They slightly agreed that an understanding of the combat support requirements will basically generate a grocery list of the tacticians' requirements to obtain the desired goal. This population agreed that an underlying assumption of all combat support plans is the need to preserve the maximum number of men and equipment possible. They also agreed that integration must.

happen among material, manpower, information and facilities; and that political and economic factors might severely limit the ability to continually have acquisition processes function at the level which will be required during the conflict. The population slightly agreed that the primary limiting factor for combat support is the availability of money. However, Air Force personnel neither agreed nor disagreed that only if an aspect of the plan is acceptable in terms of asset losses should it be included into the overall operational plan.

The Air Force population was unable to obtain consensus on the following. They lacked consensus on whether: past experience has impact on formation of strategic, tactical and logistical planning; the formal education in logistics and tactics that the operational commander has received will have a strong impact on the final combat support plan; an understanding of the expected conflict area must include information on facilities requirements; and whether the ease of incorporating a combat support plan into the operational plan has a great influence on acceptance. Additionally, there was indicated a lack of concurrence on whether: during the development process of the plan, combat support concepts will tend to become simplified; the need for integration of combat support concepts between U.S. forces and our allies will be great; the logistics aspect of combat support will require more integration than does tactics and strategy and whether an understanding of the expected

conflict area must include information on transportation requirements. The Air Force population also lacked concurrence on whether: the most pressing problem in the acquisition area will be the lack of a responsive industrial base, the appropriateness of an aspect in a combat support plan for a specific mission is a judgment call by the operational commander, the expected results of an aspect of the combat support plan in terms of losses and gains of men and equipment is a strong determining factor for including that specific aspect into the operational environment, and whether the use and availability of portable data processing equipment will help in the acceptance of a proposed combat support plan.

Navy Population. The Naval population obtained consensus on eleven of the 22 survey questions concerning how current combat support doctrine is incorporated into the tactical environment.

They agreed that past experience has impact on formation of strategic, tactical and logistical planning and that the operational experiences of the operational commander play a major part in the acceptance of the combat support plan. Additionally, they agreed that an underlying assumption of all combat support plans is the need to preserve the maximum number of men and equipment possible. In order to obtain this they agreed that an understanding of the expected conflict area must include: information on manpower requirements, information on facilities

requirements and information on transportation requirements. They slightly agreed that the expected results of an aspect of the combat support plan in terms of losses and gains of men and equipment is a strong determining factor for including that specific aspect into the operational environment, and agreed that the ease of incorporating a combat support plan into the operational plan has a great influence on acceptance. They agreed that combat support concepts will tend to become simplified during the development process of the plan. They agreed that the need for integration of combat support concepts between U.S. forces and our allies will be great, as well as agreeing that integration must happen among material, manpower, information and facilities. They agreed that the logistics aspect of combat support will require more integration than tactics and strategy.

The Navy population had a lacked concurrence on whether: the primary limiting factor for combat support is the availability of money; the formal education in logistics and tactics that the operational commander has received will have a strong impact on the final combat support plan and whether an understanding of the expected conflict area must include information on equipment requirements. The population lacked concurrence on whether the most pressing problem in the acquisition area will be the lack of a responsive industrial base, and if political and economic factors might severely limit the ability to continually have

acquisition processes function at the level which will be required during the conflict. Additionally, they lacked concurrence on whether combat support requirements will basically generate a grocery list of the tacticians' requirements to obtain the desired goal. The population was unable to obtain consensus on whether the appropriateness of an aspect in a combat support plan for a specific mission is a judgment call by the operational commander, and whether plan acceptance should be in terms of asset losses. There was a lack of concurrence on whether the strategic goal exerts a strong influence on the acceptance of a combat support plan. Finally, they lacked concurrence on whether the use and availability of portable data processing equipment will help in the acceptance of a proposed combat support plan.

Combined Population. For all questions, combination of the U.S. Air Force and U.S. Navy populations was allowable as determined by the Wilcoxon Rank Sum test. The combined population obtained consensus of eleven of the 22 survey questions concerning how combat support doctrine is incorporated into the tactical environment.

The combined population agreed that past experience has impact on formation of strategic, tactical and logistical planning; as well as agreeing that the operational experiences of the operational commander play a major part in the acceptance of the combat support plan. They agreed that an understanding of the expected conflict area must

include: information on manpower requirements, information on equipment requirements, information on facilities requirements and must include information on transportation requirements. The combined population agreed that an underlying assumption of all combat support plans is the need to preserve the maximum number of men and equipment possible. They slightly agreed that an understanding of the combat support requirements will basically generate a grocery list of the tacticians' requirements to obtain the desired goal, and that the expected results of an aspect of the combat support plan in terms of losses and gains of men and equipment is a strong determining factor for including that specific aspect into the operational environment. They agreed that the ease of incorporating a combat support plan into the operational plan has a great influence on acceptance; and that integration must happen among material, manpower, information and facilities.

The combined population lacked concurrence on whether: the primary limiting factor for combat support is the availability of money; the most pressing problem in the acquisition area will be the lack of a responsive industrial base; political and economic factors might severely limit the ability to continually have acquisition processes function at the level which will be required during the conflict and whether during the development process of the plan, combat support concepts will tend to become simplified. The combined population also lacked concurrence

on whether: the strategic goal exerts a strong influence on the acceptance of a combat support plan, the formal education in logistics and tactics that the operational commander has received will have a strong impact on the final combat support plan, the appropriateness of an aspect in a combat support plan for a specific mission is a judgment call by the operational commander, and whether acceptance of a plan is in terms of acceptable asset losses. They also lacked concurrence on whether the need for integration of combat support concepts between U.S. forces and our allies will be great, and if the logistics aspect of combat support will require more integration than tactics and strategy. Finally, the combined population lacked concurrence on whether the use and availability of portable data processing equipment will help in the acceptance of a proposed combat support plan.

Of the eleven survey questions which did not obtain consensus, over 80% of the respondents indicated varying degrees of agreement on five of the questions. Additionally, for two of the remaining questions, 100% of the respondents indicated varying degrees of agreement. However, only 57% of the respondents indicated varying degrees of agreement that the use and availability of portable data processing equipment will help in the acceptance of a proposed combat support plan. Also, only 66% of the respondents indicated varying degrees of agreement that during the development process of the plan, combat

support concepts will tend to become simplified. Finally, 62% of the respondents indicated neither agreement nor disagreement on whether: the logistics aspect of combat support will require more integration than does tactics and strategy, with 57% of the respondents neither agreeing nor disagreeing that only if an aspect of the plan is acceptable in terms of asset losses should it be included into the overall operational plan. Correlation among these survey questions was fairly high, with four questions not correlated with any other survey question. The Air Force and Navy populations both obtained consensus on over 55% of the survey questions which indicates that both populations have some consensus on how combat support doctrine is incorporated into tactical environment. However, the two populations did not obtain consensus concerning the same components in many cases.

Findings For Investigative Question #4. The general degree of consensus for these survey questions indicates that both populations have some concurrent opinions concerning how current combat support doctrine is incorporated into the tactical environment. Additionally, for seven of the survey questions which failed to obtain consensus, over 80% of the respondents indicated varying degrees of agreement. However, for two of the survey questions, less than 70% of the respondents indicated varying degrees of agreement. These two questions concerned whether: the use and availability of portable data

processing equipment will help in the acceptance of a proposed combat support plan; and whether during the development process of the plan, combat support concepts will tend to become simplified. Additionally, the combined population is unsure if: the logistics aspect of combat support will require more integration than does tactics and strategy, and if an aspect of the plan is acceptable in terms of asset losses only then should it be included into the overall operational plan. The degree of correlation among the survey questions also indicates an awareness of interrelationships within the process of incorporating current combat support doctrine into the tactical environment.

Investigative Question #5 Analysis

The fifth investigative question was to determine how the commanding officer of a unit obtains knowledge of the current doctrine which is affecting the tactical situation. A summary of the survey questions which obtained consensus is provided in Table 6.

Air Force Population. The Air Force population obtained consensus on ten of the 24 survey questions concerning how the commanding officer of a unit obtain knowledge of the current doctrine which is affecting the tactical situation.

Table 6

| Investigative Question #5 Survey Questions with Consensus | | | | | | | | | |
|---|--|----|----|----|----|----|----|----|----|
| Population | Consensus Obtained on Survey Questions | | | | | | | | |
| | 11 | 12 | 16 | 68 | 71 | 72 | 81 | 82 | 84 |
| U.S. Air Force | X | | X | X | X | X | | | |
| U.S. Navy | | X | X | | | X | X | X | X |
| Combined | | | X | X | | X | X | X | |
| | 85 | 86 | 87 | 88 | 89 | 91 | 92 | | |
| U.S. Air Force | X | | | X | X | X | X | | |
| U.S. Navy | X | X | X | | | | | | |
| Combined | X | X | X | | X | X | X | | |

The Air Force population strongly agreed that intercommunications between tacticians and logisticians are necessary for effective combat support. They also agreed that the management style of the operational commander will affect the effectiveness of the combat support plan; and slightly agreed that by maintaining strict control over combat support plans, the operational commander knows of the effects upon his assigned mission. Air Force personnel slightly agreed that tacticians see logisticians as business managers, and slightly disagreed that operational commanders constantly stress the need for communication between tacticians and logisticians. The Air Force population slightly agreed that logisticians are able to relay to the operational commander the reasons that certain logistical functions are dictated in the combat support plan, but

slightly agreed that knowledge of U.S. and allied force capabilities will be obtained by a careful review of the combat support plan. They agreed that the operational environment will function as the consumer of logistical assets, and as such will be restricted by those assets. Finally, the population neither agreed nor disagreed that: operational commanders have an instruction which informs them about combat support plans, or that "Battle Books" aid in understanding the influence of combat support plans on operations.

Air Force personnel lack concurrence on whether: strategists inform both logisticians and tacticians of strategic requirements at the same time, the use and availability of portable data processing equipment will assist in use of any developed combat support plan and whether logisticians are intimately familiar with the tactical plan as developed by the operational commander. The population lacked concurrence on whether control over the developed combat support plan is the means of obtaining the strategic goals. They also lacked concurrence on whether during the actual conflict, combat support activities will become decentralized; and if during the actual conflict, combat support decisions must be made on the spot. Additionally, Air Force personnel lack concurrence on whether: combat support plans provide information on how to obtain, move and maintain equipment and men for war; from previous experiences, operational commanders understand the

advantages a developed combat support plan has on operational situations; and whether operational commanders assume that the combat support plan is complete and concise. Air Force personnel lack concurrence on whether: operational commanders insist on the use and development of "Battle Books" containing important information from the combat support plan, peacetime tactical operations adequately prepare men and equipment for war, and if peacetime combat support operations adequately practice for war. They also lacked concurrence on whether the operational commander conducts peacetime operations as if during a time of conflict in order to understand the combat support plan. Finally, the Air Force population lacked concurrence on whether operational commanders insure cross-training of men between the areas of tactics and logistics to increase knowledge of the influences combat support plans have on operations.

Navy Population. The Naval population obtained consensus on nine of the 24 survey questions concerning how the commanding officer of a unit obtain knowledge of the current doctrine which is affecting the tactical situation.

The Naval population strongly agreed that intercommunications between tacticians and logisticians are necessary for effective combat support. The Naval population agreed that the management style of the operational commander will affect the effectiveness of the combat support plan; and slightly agreed that by maintaining

strict control over combat support plans, the operation commander knows of the effects upon his assigned mission. They slightly disagree that operational commanders insure cross-training of men between the areas of tactics and logistics to increase knowledge of the influences combat support plans have on operations. The population agreed that combat support plans provide information on how to obtain, move and maintain equipment and men for war. They also slightly agreed that the use and availability of portable data processing equipment will assist in use of any developed combat support plan; and that from previous experiences, operational commanders understand the advantages a developed combat support plan has on operational situations. However, the population slightly disagreed that in order to understand the combat support plan the operational commander conducts peacetime operations as if during a time of conflict. The Naval population neither agreed nor disagreed that operational commanders insist on the use and development of "Battle Books" containing important information from the combat support plan.

The Navy population indicated a lack of consensus on whether: strategists inform both logisticians and tacticians of strategic requirements at the same time, tacticians see the logisticians as business managers and whether logisticians are intimately familiar with the tactical plan as developed by the operational commander.

The population lacks concurrence on whether control over the developed combat support plan is the means of assuring obtainment of the strategic goals; and if during the actual conflict, combat support activities will become decentralized and if combat support decisions must be made on the spot. Naval personnel lack concurrence on whether operational commanders assume that the combat support plan is complete and concise; and if the operational environment will function as the consumer of logistical assets, and as such will be restricted by those assets. There is a lack of concurrence on whether "Battle Books" aid in understanding the influence of combat support plans on operations. Naval personnel also lack concurrence on whether: peacetime tactical operations adequately prepare men and equipment for war, peacetime combat support operations adequately practice for war, and if knowledge of U.S. and allied force capabilities will be obtained by a careful review of the combat support plan. There was a lack of concurrence on whether operational commanders have an instruction which informs them about combat support plans, or if logisticians are able to relay to the operational commander the reasons that certain logistical functions are dictated in the combat support plan. Finally, Naval personnel lack concurrence on whether operational commanders constantly stress the need for communication between tacticians and logisticians.

Combined Population. For all questions, combination of U.S Air Force and U.S. Navy populations was allowable as

determined by the Wilcoxon Rank Sum test. The combined population obtained consensus on eleven of the 24 survey questions concerning how the commanding officer of a unit obtains knowledge of the current doctrine which is affecting the tactical situation.

The combined population strongly agreed that intercommunications between tacticians and logisticians are necessary for effective combat support. The combined population also agreed that the management style of the operational commander will affect the effectiveness of the combat support plan, and slightly agreed that by maintaining strict control over combat support plans, the operation commander knows of the effects upon his assigned mission. The combined population slightly agreed that logisticians are able to relay to the operational commander the reasons that certain logistical functions are dictated in the combat support plan, and slightly agreed that knowledge of U.S. and allied force capabilities will be obtained by a careful review of the combat support plan. This population slightly agreed that, from previous experiences, operational commanders understand the advantages that a developed combat support plan has on operational situations and that the use and availability of portable data processing equipment will assist in use of any developed combat support plan. The combined population slightly disagreed that operational commanders insure cross-training of men between the areas of tactics and logistics to increase knowledge of the

influences combat support plans have on operations. The combined population neither agreed nor disagreed: that operational commanders have an instruction which informs them about combat support plans, that operational commanders insist on the use and development of "Battle Books" containing important information from the combat support plan, or that "Battle Books" aid in understanding the influence of combat support plans on operations.

The combined population lacks concurrence on whether: strategists inform both logisticians and tacticians of strategic requirements at the same time, logisticians are intimately familiar with the tactical plan as developed by the operational commander, tacticians see the logisticians as business managers, or whether operational commanders constantly stress the need for communication between tacticians and logisticians. The population lacks concurrence on whether control over the developed combat support plan is the means of assuring obtainment of the strategic goals, whether during the actual conflict, combat support activities will become decentralized; and whether during the actual conflict, combat support decisions must be made on the spot. Additionally, the combined population lacks concurrence on whether operational commanders assume that the combat support plan is complete and concise, and whether the operational environment will function as the consumer of logistical assets, and as such will be restricted by those same assets. This population lacked

consensus on whether combat support plans provide information on how to obtain, move and maintain equipment and men for war. Finally, the combined population lacks concurrence on whether the operational commander conducts peacetime operations as if during a time of conflict in order to understand the combat support plan, and if peacetime tactical operations adequately prepare men and equipment for war. Additionally, they lacked consensus on whether peacetime combat support operations adequately practice for war.

Of the twelve survey questions which did not obtain consensus, over 80% of the respondents indicated varying degrees of agreement on three of the questions. One additional survey question had 100% of the respondents indicating varying degrees of agreement. This survey question was on whether during the actual conflict, combat support decisions must be made on the spot. On an additional four survey question over 80% of the respondents indicated varying degrees of disagreement. These survey questions were on whether: the strategist informs both logisticians and tacticians of strategic requirements at the same time, peacetime tactical operations adequately prepare men and equipment for war, peacetime support operations adequately practice for war, and whether logisticians are intimately familiar with the tactical plan as developed by the operational commander. Only 62% of the respondents had varying degrees of agreement that control over the developed

combat support plan is the means of assuring obtainment of the strategic goals. Finally, 76% of the respondees had varying degrees of disagreement that in order to understand the combat support plan the operational commander conducts peacetime operations as if during a time of conflict.

The amount of correlation among these survey questions was fair (See Appendix O, Table 5), with five of the 24 survey questions not displaying correlation with any other question. The level of consensus for this series of questions was also low, with the combined population obtaining consensus on 45% of the questions, the Air Force population obtaining consensus on 41% of the questions and the Navy obtaining consensus on 38% of the questions.

Findings For Investigative Question #5. The overall general lack of correlation and lack of a high level of consensus on the survey questions indicates that there is a general lack of concurrence on how the commanding officer of a unit obtains knowledge of the current doctrine which is affecting the tactical situation. Additionally, for four of the survey questions which failed to obtain consensus, over 80% of the respondees indicated varying degrees of disagreement. These survey questions were on whether: the strategist informs both logisticians and tacticians of strategic requirements at the same time, peacetime tactical operations adequately prepare men and equipment for war, peacetime support operations adequately practice for war, and whether logisticians are intimately familiar with the

tactical plan as developed by the operational commander. On one additional survey question, 76% of the respondees had varying degrees of disagreement that in order to understand the combat support plan the operational commander conducts peacetime operations as if during a time of conflict. Finally, only 62% of the respondees had varying degrees of agreement that control over the developed combat support plan is the means of assuring obtainment of the strategic goals.

Summary Conclusions on Investigative Questions

Investigative Question #1. The intricate relationships among strategy, tactics and logistics were developed and examined in Chapter II. Some of these relationships were examined during the Delphi technique to determine if the information contained in the literature review is in consonance with the tactical environment. The Delphi process indicated that while there is a lack of consensus on the relationships among strategy, tactics and logistics as identified by the literature review, in general there are overall varying degrees of agreement with the literature review. One important area of disagreement concerned the impact of the industrial base on the development of strategic plans.

Investigative Question #2. Current combat support doctrine was developed and examined during Chapter II. Combat support doctrine was determined to be composed of

eight processes which are reflected in combat support plans. During the Delphi survey, the composition of combat support plans was examined to determine if the information contained in the literature review was in consonance with the tactical environment. The Delphi process indicated that both the Air Force and Navy populations have consensus of opinions on the majority of the combat support processes. However, the Delphi process indicated that there was a total lack of consensus on three of the combat support processes as identified by the literature review. These combat support processes were: the definition process, the distribution process, and the acquisition process. The Delphi process indicated that while there is a lack of consensus on requirements within combat support plans, there were varying degrees of agreement with all the processes.

Investigative Question #3. The components which comprise current combat support doctrine were developed and examined during Chapter II. During the Delphi process these components were examined to determine if the information contained in the literature review was in consonance with the tactical environment. The Delphi process indicated that both the Air Force and Navy populations have an awareness of the interrelationships among the components of combat support. However, the process also indicated a lack of consensus concerning these components. The Delphi process indicated that while there is a lack of consensus on the components identified through the literature review, over

75% of the questions had varying degrees of agreement. Less than 25% had either low levels of varying degrees of agreement or the respondees neither agreed nor disagreed.

Investigative Question #4. The Delphi process was used to determine how combat support doctrine is incorporated into the tactical environment. The Delphi process indicated that the experiences of operational commander; information on the expected threat area; and a desire to preserve the maximum number of men and equipment possible, all play major roles during the incorporation of current combat support into the tactical environment. These three broad areas generate a list of combat support requirements which, dependent on the ease of incorporating them into the operational plan, aid in integration of materiel, manpower, information and facilities to accomplish the strategic goals. There was a lack of consensus by the both populations concerning several other components. These components were: the impact of acquisition processes, the impact of the political - economic arena, the impact of the operational commander's educational level, the impact of integration processes, and the impact of portable data equipment. An important finding was that the survey questions that the individual population obtained consensus on were diverse, with both populations obtaining consensus on the same survey question only three times.

Investigative Question #5. The Delphi process was used to determine how the commanding officer of a unit obtains

knowledge of the current doctrine which is affecting the tactical situation. The Delphi process strongly indicated that the primary means was through intercommunication between the logistician and the tactician. The process also indicated that the operational commander has a bearing on the effectiveness of the combat support plan and that he must maintain control over the plan. In order to do this, the operational commander must listen to the logistician, and then take advantage of the developed combat support plan, through the use of portable data processing equipment. It was noted that operational commanders are not ensuring that cross-training of personnel is being performed, which would aid in learning about the combat support plan. Additionally, the Delphi process indicated that operational commanders are unsure of where to find information concerning the combat support plan. There was indicated a lack of consensus on whether the groups involved with development of combat support plans even talked to each other. The overall impression from the Delphi process was a general lack of consensus by both Air Force and Navy populations on how operational commanders learn of the effects combat support has on the tactical environment. An important finding was that the survey questions that the individual population obtained consensus on were diverse, with both populations obtaining consensus on the same survey question only three times.

Chapter Summary

This chapter presented the Delphi process used to obtain information from the tactical environment and includes panel demographics. The analysis and findings from the research were presented, followed by summary comments for each investigative question. Chapter V will present conclusions and recommendations based upon the literature review, analysis and findings from Chapter II and IV.

Chapter V. Conclusions and Recommendations

Chapter Overview

This chapter presents conclusions and recommendations based upon the results of the research process. The chapter begins by answering the research question for which this research was undertaken. Five conclusions were obtained from the literature review and results of the Delphi process. After the conclusions are discussed, four recommendations are presented. These recommendations suggest areas which would improve current understanding of combat support doctrine and how it affects the operational commander by personnel in the tactical environment. Finally, additional research recommendations are presented based upon this research.

Conclusions

Conclusion 1. As determined through the literature review, combat support is the interaction between tactics and logistics. This interaction was determined to be the means by which strategic goals are obtained. Eight processes were determined to comprise the interaction between tactics and logistics. These eight processes are: definition, acquisition, maturation, preservation, disposition, distribution, integration and restoration. An understanding of these processes, and the interaction between tactics and logistics, leads to an understanding of

how combat support doctrine affects the operational commander.

Conclusion 2. Literature on strategy, tactics, and logistics, as well as combat support doctrine, is available to operational commanders within the Air Force and Navy. However, the Air Force approach is to promulgate a publication which describes the doctrine. However, the Navy relies on tradition and the issuance of instructions on how to perform the actions required by combat support. The Delphi survey indicated that personnel in the tactical environment have varying degrees of agreement on the majority on the relationships among strategy, tactics, and logistics.

Conclusion 3. Personnel in the tactical environment lack consensus on what the literature states concerning combat support. Therefore operational commanders receive differing opinions on the effect combat support has on the tactical environment. Operational commanders in the tactical environment rely on intercommunications and experiences among the strategist, tactician, and logistician to communicate the effects of combat support on the tactical environment. It is uncertain if personnel obtain information on combat support and the effect on the tactical environment on the operational commander from written instructions, "Battle Books" or available literature, but the survey indicated that reliance is mainly on experience and intercommunications.

Conclusion 4. The Delphi survey indicated that operational commanders have an awareness of the effects combat support has on the tactical environment, but are not aware of what causes those effects. Additionally, survey questions concerning the theoretical aspects of combat support doctrine consistently failed to obtain either Air Force or Navy consensus. This indicates a lack of theoretical understanding of combat support doctrine, strategy, tactics, logistics, and the effects combat support doctrine has on the operational commander, which will be needed during the trauma of conflict.

Conclusion 5. The operational commander is not using peacetime activities to understand the effect the combat support plan will have on his forces during a conflict. This prevents the operational commander from understanding these effects and obtaining satisfactory resolution to problems prior to a conflict. Additionally, the operational commander does not ensure that all parties involved in a operational plan have the same level of understanding, nor the same time available to evaluate the plan.

Recommendations

Recommendation 1. Both the Air Force and Navy should institute educational requirements for personnel to have an understanding of the interrelationships among strategy, tactics, and logistics. Personnel should continually receive this training to understand where combat support

doctrine fits among the interrelationships of strategy, tactics, and logistics.

Recommendation 2. Both the Air Force and Navy should continue to educate personnel concerning the importance of combat support and its effect on the tactical environment. This should include a required reading list, formal training, and course work, which could be accomplished through a correspondence course under the supervision of commanding officers.

Recommendation 3. Operational commanders should seek sources of information on the effects of combat support on the tactical environment. They need to increase the information available to include instructions, "Battle Books", and actual experiences under realistic simulations, to learn how the current combat support doctrine affects them in the field.

Recommendation 4. Both Air Force and Navy officers need to become more aware of the theories and components which affect combat support doctrine and incorporate them into their current job situations. Each command should have available instructions which would describe to personnel current combat support doctrine and how it affects the command.

Furthur Research Recommendations

Research Recommendation 1. A large amount of data was obtained concerning correlations among various survey

questions. These correlations should be examined and developed into a model for use by commands to develop a command instruction concerning combat support.

Research Recommendation 2. This study captured mainly the opinions of logisticians from the U.S. Air Force and U.S. Navy. A similiar study should be conducted involving the U.S. Army and U.S. Marine Corps to determine their opinions. Additionally, a series of studies should query tactical and operational commanders in the tactical environment to determine their opinions on what is combat support doctrine and how the doctrine affects them.

Research Recommendation 3. This study generated a large data base of comments related to strategy, tactics, logistics, and combat support. An analysis of these comments from the tactical environment would provide significant information on current trends in the tactical environment.

Research Recommendation 4. This research study focused on the interaction of tactics and logistics, known as combat support. The other interactions within the strategy, tactics and logistics arena should also be investigated to further understanding by personnel in all services.

Chapter Summary

This chapter presented conclusions, recommendations and research recommendations based upon the research performed during the study. There were five conclusions which

answered the research question and led to four recommendations for both the Air Force and Navy to improve knowledge of current combat support doctrine and how it affects the operational commander. Finally, four possible research recommendations were presented which would assist in obtaining additional information on strategy, tactics, logistics, and combat support.

Appendix A: Definitions

1. Definition- the process of determining tomorrow's combat capabilities (5:2-1).
2. Acquisition- the process of obtaining and converting resources into potential warfighting assets (5:2-2).
3. Maturation- the process of preparing military assets for combat (5:2-3).
4. Distribution- the process of transferring resources from one location to another for deterrent or warfighting purposes (5:2-3).
5. Integration- the process of integrating all military assets into a synchronized warfighting team (5:2-4).
6. Preservation- the process of protecting military resources, both men and equipment from nuclear, chemical, biological, electronic and conventional threats (5:2-4).
7. Restoration- the process of reversing the deterioration of assets weakened by age, intensity of use, design limitations, exposure to combat, or lack of adaptability (5:2-5).
8. Disposition- the process of recycling, transferring, retiring, or divesting of assets that are no longer required to meet combat needs (5:2-5).

Appendix B: Final Format for the Initial Survey

Panel Demographics: Asked on first questionnaire only.

1. Service: USN ____ USAF ____

2. What is your current rank (O3,O4,O5,etc.) ____

3. Highest Education Level

High School: ____ Undergraduate: ____ Master's: ____ Doctorate: ____

4. How many years of experience have you had in the area of logistics? ____

5. How many years of experience have you had in the area of tactics? ____

6. Is your current position in the area of logistics, tactics or some other area(please specify)? _____

Questions 1 through 9 deal with the relationships between strategy, tactics and logistics.

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

1. Development of strategy is based primarily upon political and economic requirements.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

2. Past experience has impact on formation of strategic, tactical and logistical planning.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

3. When setting strategic goals, combat support considerations dictate the scope of the mission goals.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

4. A tactician's primary purpose is to formulate the operational plans which will result in obtaining stated strategic goals, regardless of other considerations.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

5. Strategic plans are limited by the current available industrial base.

1 2 3 4 5 6 7

Comments: _____

6. When setting strategic goals, combat support considerations dictate the timing of obtaining the desired goal.

1 2 3 4 5 6 7

Comments: _____

7. Tactics is limited by the availability of material within the available supply system.

1 2 3 4 5 6 7

Comments: _____

8. The primary limiting factor for combat support is the availability of money.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

9. Strategists inform both logisticians and tacticians of strategic requirements at the same time.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

Questions 10-16 deal with a general overview of Combat Support Plans.

10. Combat support plans are composed of:

A. Descriptions and amounts of men and equipment required. 1 2 3 4 5 6 7

B. Requirements for development and training of men and equipment for combat. 1 2 3 4 5 6 7

C. Requirements for insuring protection of men and equipment during a conflict. 1 2 3 4 5 6 7

D. Integration requirements for men and equipment to form a functioning combat unit. 1 2 3 4 5 6 7

E. Requirements for men and equipment for a combat unit. 1 2 3 4 5 6 7

F. Maintenance requirements for a functioning combat unit under diverse field conditions. 1 2 3 4 5 6 7

G. Transportation requirements for men and equipment during a combat situation. 1 2 3 4 5 6 7

H. Removal actions required for unneeded men and equipment, to make way for needed men and equipment. 1 2 3 4 5 6 7

Comments on question 10:

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

11. Tacticians see the logisticians as business managers.

1 2 3 4 5 6 7

Comments: _____

12. Combat support plans provide information on how to obtain, move and maintain equipment and men for war.

1 2 3 4 5 6 7

Comments: _____

13. Peacetime tactical operations adequately prepare men and equipment for war.

1 2 3 4 5 6 7

Comments: _____

14. Peacetime combat support operations adequately practice for war.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

15. Combat Support is the interaction between tactics and logistics.

1 2 3 4 5 6 7

Comments: _____

16. Intercommunications between tacticians and logisticians are necessary for effective combat support.

1 2 3 4 5 6 7

Comments: _____

Questions 17-38 deal only with the specific areas of Combat Support.

17. Acquisition activities will not function normally within the combat support arena during time of war.

1 2 3 4 5 6 7

Comments: _____

18. Maintainability acknowledges maturation of equipment.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

19. Removal of nonfunctioning men and equipment from the combat zone is a necessary aspect of combat support.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

20. Distribution of assets provides the means whereby preservation and restoration are accomplished.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

21. Integration insures maximum commonality between equipment and repair parts in the field.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

22. Foreign relations has an impact upon distribution processes and concepts.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

23. Separation of assets causes distribution problems and impacts on the method of distributing assets.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

24. Common supply items for combat units should be centrally located in forward echelon areas to facilitate ease of obtaining items by all forces in the area.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

25. Containerization processes should be improved with specially constructed vehicles being used to provide transportation services.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

26. Prepositioning of material provides immediate availability of material required by deploying forces.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

27. Prepositioning ties up supply assets making them unavailable for other uses.

1 2 3 4 5 6 7

Comments: _____

28. Construction requirements must be incorporated into combat support plans to provide for required facilities.

1 2 3 4 5 6 7

Comments: _____

29. Distrust of the distribution process cause operational commanders to overrequisition material from supply points.

1 2 3 4 5 6 7

Comments: _____

30. Prepositioning of equipment aids in restoring equipment quickly during conflict.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

31. During periods of conflict, restoration and maintainance of information functions will be necessary to ensure that combat support will be accomplished correctly.

1 2 3 4 5 6 7

Comments: _____

32. The restoration process will be accomplished at or near the forward battle line.

1 2 3 4 5 6 7

Comments: _____

33. Current repair jobs are so complex that availability of fully capable equipment will decrease rapidly during a conflict.

1 2 3 4 5 6 7

Comments: _____

34. Nonfunctional equipment must quickly be delivered to the appropriate level of repair.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

35. When equipment and men are dispersed the ability to restore and maintain assets is directly diminished as a function of distance from facilities.

1 2 3 4 5 6 7

Comments: _____

36. Development of men and equipment will happen prior to a conflict, resulting in better prepared men and equipment.

1 2 3 4 5 6 7

Comments: _____

37. The practice of using equipment and men in a combat simulation falls short of incorporating the realities that will be seen during a real conflict.

1 2 3 4 5 6 7

Comments: _____

38. It is necessary that the logistician become aware of the capabilities of the tactician.

1 2 3 4 5 6 7

Comments: _____

Answer the following questions according to the following scenario.

You have been assigned the task of coordinating the development of combat support plans to accomplish the following strategic goal: a deployment of forces and supplies to stabilize an unspecified area approximately 4,000 nautical miles from the United States. The nearest Maritime Prepositioning Squadron is located approximately 1,200 nautical miles from the conflict and carries supplies for a 15,670-man Marine Amphibious Brigade. The nearest host country is approximately 300 nautical miles from the conflict area and will provide limited support for operations during the conflict. Facilities provided at the base by the host nation are a runway, limited electrical, and limited water supply. Air transport time to this base is approximately 15 hours from the nearest airfield in the United States. All maintenance requirements will be accomplished by deployed forces. The nearest Near-Term Prepositioning Squadron (NTPS) is approximately 4,000 nautical miles away and carries supplies for U.S. Army, Air Force and Navy. Allied forces will cooperate with U.S. forces during the conflict.

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

39. The formal education in logistics and tactics that the operational commander has received will have a strong impact on the final combat support plan.

1 2 3 4 5 6 7

Comments: _____

40. During the actual conflict, combat support activities will become decentralized.

1 2 3 4 5 6 7

Comments: _____

41. During the actual conflict, combat support decisions must be made on the spot.

1 2 3 4 5 6 7

Comments: _____

42. During the development process of the plan, combat support concepts will tend to become simplified.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

43. The need for integration of combat support concepts between U.S. forces and our allies will be great.

1 2 3 4 5 6 7

Comments: _____

44. Integration must happen among material, manpower, information and facilities.

1 2 3 4 5 6 7

Comments: _____

45. The logistics aspect of combat support will require more integration than does tactics and strategy.

1 2 3 4 5 6 7

Comments: _____

46. Removal of degraded equipment during the conflict will require understanding of cannibalization processes.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

47. Removal of unneeded men and equipment might require a significant portion of initial distribution activities.

1 2 3 4 5 6 7

Comments: _____

48. The combat worth of a specific asset, be it men or equipment, will be the determining factor for allowing it to remain in the conflict area.

1 2 3 4 5 6 7

Comments: _____

49. Peacetime methods of disposal as well as control over them will disappear during the conflict.

1 2 3 4 5 6 7

Comments: _____

50. Constant communication with allies and their desires regarding disposal of assets will increase during the conflict.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

51. During the initial phases of the conflict, initial requirements will be primarily in the preservation of men and equipment.

1 2 3 4 5 6 7

Comments: _____

52. Separating men and equipment into small functional units will provide the largest degree of preservation during the conflict.

1 2 3 4 5 6 7

Comments: _____

53. Preservation processes during the conflict will rely heavily upon initial construction capabilities.

1 2 3 4 5 6 7

Comments: _____

54. Use of special systems and platforms will enhance the protection capabilities of combat units.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

55. A thorough understanding of all sea-ground-air threats is mandatory in order for the design of protection plans.

1 2 3 4 5 6 7

Comments: _____

56. Protection of men and equipment will be hindered by the complexity of current weapons systems.

1 2 3 4 5 6 7

Comments: _____

57. Protection of men and equipment will be hindered by the lack of adequate protection concepts.

1 2 3 4 5 6 7

Comments: _____

58. The protection of basic human requirements, (ie, food, shelter, etc.,) will require extensive expenditures of manpower and money.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

59. An understanding of the expected conflict area must include information on manpower requirements.

1 2 3 4 5 6 7

Comments: _____

60. An understanding of the expected conflict area must include information on equipment requirements.

1 2 3 4 5 6 7

Comments: _____

61. An understanding of the expected conflict area must include information on facilities requirements.

1 2 3 4 5 6 7

Comments: _____

62. An understanding of the expected conflict area must include information on transportation requirements.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------|---|---|----------|---|---|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY | | | NEITHER | | | STRONGLY |
| DISAGREE | | | AGREE | | | AGREE |
| | | | NOR | | | |
| | | | DISAGREE | | | |

63. An underlying assumption of all combat support plans is the need to preserve the maximum number of men and equipment possible.

1 2 3 4 5 6 7

Comments: _____

64. An understanding of the combat support requirements will basically generate a grocery list of the tacticians' requirements to obtain the desired goal.

1 2 3 4 5 6 7

Comments: _____

65. The most pressing problem in the acquisition area will be the lack of a responsive industrial base.

1 2 3 4 5 6 7

Comments: _____

66. Political and economic factors might severely limit the ability to continually have acquisition processes function at the level which will be required during the conflict.

1 2 3 4 5 6 7

Comments: _____

1
STRONGLY
DISAGREE

2

3

4
NEITHER
AGREE
NOR
DISAGREE

5

6

7
STRONGLY
AGREE

67. Acquisition functions will be hampered by the complexity of the modern weapons systems and will not be able to respond rapidly during the conflict.

1 2 3 4 5 6 7

Comments: _____

68. Knowledge of U.S. and allied force capabilities will be obtained by a careful review of the combat support plan.

1 2 3 4 5 6 7

Comments: _____

69. The nature of the conflict is composed of the functional areas of distribution, restoration, definitions and preservation.

1 2 3 4 5 6 7

Comments: _____

70. Control over the developed combat support plan is the means of assuring obtainment of the strategic goals.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------------------|---|---|-------------------------------------|---|---|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY DISAGREE | | | NEITHER AGREE NOR DISAGREE | | | STRONGLY AGREE |

71. The operational environment will function as the consumer of logistical assets, and as such will be restricted by those assets.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

72. The management style of the operational commander will affect the effectiveness of the combat support plan.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

73. The management style of the operational commander will affect the success of the mission.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

74. Deciding if an aspect of the combat support plan is appropriate for a specific mission is a judgment call by the operational commander.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

| | | | | | | |
|----------------------|---|---|-------------------------------------|---|---|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY DISAGREE | | | NEITHER AGREE NOR DISAGREE | | | STRONGLY AGREE |

75. The expected results of an aspect of the combat support plan in terms of losses and gains of men and equipment is a strong determining factor for including that specific aspect in the operational environment.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

76. Only if an aspect of the plan is acceptable in terms of asset losses should it be included in the overall operational plan.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

77. The operational experiences of the operational commander play a major part in the acceptance of the combat support plan.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

78. The strategic goal exerts a strong influence on the acceptance of a combat support plan.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

| | | | | | | |
|----------------------|---|---|-------------------------------------|---|---|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY DISAGREE | | | NEITHER AGREE NOR DISAGREE | | | STRONGLY AGREE |

79. The ease of incorporating a combat support plan into the operational plan has a great influence on acceptance.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

80. The use and availability of portable data processing equipment will help in the acceptance of a proposed combat support plan.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

81. The use and availability of portable data processing equipment will assist in use of any developed combat support plan.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

| | | | | | | |
|----------------------|---|---|-------------------------------------|---|---|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY DISAGREE | | | NEITHER AGREE NOR DISAGREE | | | STRONGLY AGREE |

82. From previous experiences, operational commanders understand the advantages a developed combat support plan has on operational situations.

1 2 3 4 5 6 7

Comments: _____

83. Operational commanders assume that the combat support plan is complete and concise.

1 2 3 4 5 6 7

Comments: _____

84. In order to understand the combat support plan the operational commander conducts peacetime operations as if during a time of conflict.

1 2 3 4 5 6 7

Comments: _____

85. By maintaining strict control over combat support plans, the operation commander knows of the effects upon his assigned mission.

1 2 3 4 5 6 7

Comments: _____

| | | | | | | |
|----------------------|---|---|-------------------------------------|---|---|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY DISAGREE | | | NEITHER AGREE NOR DISAGREE | | | STRONGLY AGREE |

86. Operational commanders insure cross-training of men between the areas of tactics and logistics to increase knowledge of the influences combat support plans have on operations.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

87. Operational commanders insist on the use and development of "Battle Books" containing important information from the combat support plan.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

88. Operational commanders have an instruction which informs them about combat support plans.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

89. Operational commanders constantly stress the need for communication between tacticians and logisticians.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

Comments: _____

| | | | | | | |
|----------------------|---|---|-------------------------------------|---|---|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| STRONGLY DISAGREE | | | NEITHER AGREE NOR DISAGREE | | | STRONGLY AGREE |

90. Logisticians are intimately familiar with the tactical plan as developed by the operational commander.

1 2 3 4 5 6 7

Comments: _____

91. Logisticians are able to relay to the operational commander the reasons that certain logistical functions are dictated in the combat support plan.

1 2 3 4 5 6 7

Comments: _____

92. "Battle Books" aid in understanding the influence of combat support plan on operations.

1 2 3 4 5 6 7

Comments: _____

Appendix C: Relationships of Questions to Developed Models

Questions developed from the Strategy, Tactics and Logistics Model

1. Development of strategy is based primarily upon political and economic requirements.
2. Past experience has impact on formation of strategic, tactical and logistical planning.
3. When setting strategic goals, combat support considerations dictate the scope of the mission goals.
4. A tactician's primary purpose is to formulate the operational plans which will result in obtaining stated strategic goals, regardless of other considerations.
5. Strategic plans are limited by the current available industrial base.
6. When setting strategic goals, combat support considerations dictate the timing of obtaining the desired goal.
8. The primary limiting factor for combat support is the availability of money.

15. Combat Support is the interaction between tactics and logistics.

45. The logistics aspect of combat support will require more integration does tactics and strategy.

66. Political and economic factors might severely limit the ability to continually have acquisition processes function at the level which will be required during the conflict.

71. The operational environment will function as the consumer of logistical assets, and as such will be restricted by those assets.

Questions that were developed from the Combat Support Model.

10. Combat support plans are composed of:

A. Descriptions and amounts of men and equipment required.

B. Requirements for development and training of men and equipment for combat.

C. Requirements for insuring protection of men and equipment during a conflict.

D. Integration requirements for men and equipment to form a functioning combat unit.

E. Requirements for men and equipment for a combat unit.

F. Maintenance requirements for a functioning combat unit under diverse field conditions.

G. Transportation requirements for men and equipment during a combat situation.

H. Removal actions required for unneeded men and equipment, to make way for needed men and equipment.

12. Combat support plans provide information on how to obtain, move and maintain equipment and men for war.

13. Peacetime tactical operations adequately prepare men and equipment for war.

14. Peacetime combat support operations adequately practice for war.

16. Inter-communications between tacticians and logisticians are necessary for effective combat support.

17. Acquisition activities will not function normally within the combat support arena during time of war.

18. Maintainability acknowledges maturation of equipment.

19. Removal of non-functioning men and equipment from the combat zone is a necessary aspect of combat support.

20. Distribution of assets provides the means whereby preservation and restoration are accomplished.

21. Integration insures maximum commonality between equipment and repair parts in the field.

28. Construction requirements must be incorporated into combat support plans to provide for required facilities.

30. Prepositioning of equipment aids in restoring equipment quickly during conflict.

31. During periods of conflict, restoration and maintainance of information functions will be necessary to ensure that combat support will be accomplished correctly.

32. The restoration process will be accomplished at or near the forward battle line.

34. Nonfunctional equipment must quickly be delivered to the appropriate level of repair.

35. When equipment and men are dispersed the ability to restore and maintain assets is directly diminished as a function of distance from facilities.

36. Development of men and equipment will happen prior to a conflict, resulting in better prepared men and equipment.

37. The practice of using equipment and men in a combat simulation falls short of incorporating the realities that will be seen during a real conflict.

46. Removal of degraded equipment during the conflict will require understanding of cannibalization processes.

47. Removal of unneeded men and equipment might require a significant portion of initial distribution activities.

48. The combat worth of a specific asset, be it men or equipment, will be the determining factor for allowing it to remain in the conflict area.

49. Peacetime methods of disposal as well as control over them will disappear during the conflict.

50. Constant communication with allies and their desires regarding disposal of assets will increase during the conflict.

51. During the initial phases of the conflict, initial requirements will be primarily in the preservation of men and equipment.

52. Separating men and equipment into small functional units will provide the largest degree of preservation during the conflict.

53. Preservation processes during the conflict will rely heavily upon initial construction capabilities.

56. Protection of men and equipment will be hindered by the complexity of current weapons systems.

57. Protection of men and equipment will be hindered by the lack of adequate protection concepts.

58. The protection of basic human requirements, (ie, food, shelter, etc.,) will require extensive expenditures of manpower and money.

59. An understanding of the expected conflict area must include information on manpower requirements.

60. An understanding of the expected conflict area must include information on equipment requirements.

61. An understanding of the expected conflict area must include information on facilities requirements.

62. An understanding of the expected conflict area must include information on transportation requirements.

65. The most pressing problem in the acquisition area will be the lack of a responsive industrial base.

67. Acquisition functions will be hampered by the complexity of the modern weapons systems and will not be able to respond rapidly during the conflict.

84. In order to understand the combat support plan the operational commander conducts peacetime operations as if during a time of conflict.

86. Operational commanders insure cross-training of men between the areas of tactics and logistics to increase knowledge of the influences combat support plans have on operations.

The following questions were developed from the Model for Evaluating Combat Support Doctrine.

63. An underlying assumption of all combat support plans is the need to preserve the maximum number of men and equipment possible.

64. An understanding of the combat support requirements will basically generate a grocery list of the tacticians' requirements to obtain the desired goal.

74. Deciding if an aspect of the combat support plan is appropriate for a specific mission is a judgment call by the operational commander.

75. The expected results of an aspect of the combat support plan in terms of losses and gains of men and equipment is a strong determining factor for including that specific aspect into the operational environment.

76. Only if an aspect of the plan is acceptable in terms of asset losses should it be included into the overall operational plan.

79. The ease of incorporating a combat support plan into the operational plan has a great influence on acceptance.

91. Logisticians are able to relay to the operational commander the reasons that certain logistical functions are dictated in the combat support plan.

Appendix D: Breakdown of Survey Questions by Investigative
Question

Investigative Question Number 1 (What relationships are there between strategy, tactics, and logistics?) is answered by the following:

1. Development of strategy is based primarily upon political and economic requirements.
3. When setting strategic goals, combat support considerations dictate the scope of the mission goals.
4. A tactician's primary purpose is to formulate the operational plans which will result in obtaining stated strategic goals, regardless of other considerations.
5. Strategic plans are limited by the current available industrial base.
6. When setting strategic goals, combat support considerations dictate the timing of obtaining the desired goal.
7. Tactics is limited by the availability of material within the available supply system.

Investigative Question Number 2 (What is the current combat support doctrine?) is answered by the following:

10. Combat support plans are composed of:

A. Descriptions and amounts of men and equipment required.

B. Requirements for development and training of men and equipment for combat.

C. Requirements for insuring protection of men and equipment during a conflict.

D. Integration requirements for men and equipment to form a functioning combat unit.

E. Requirements for men and equipment for a combat unit.

F. Maintenance requirements for a functioning combat unit under diverse field conditions.

G. Transportation requirements for men and equipment during a combat situation.

H. Removal actions required for unneeded men and equipment, to make way for needed men and equipment.

15. Combat Support is the interaction between tactics and logistics.

Investigative Question Number 3 (What elements comprise the current combat support doctrine?) is answered by the following:

Definition Process Components

28. Construction requirements must be incorporated into combat support plans to provide for required facilities.

69. The nature of the conflict is composed of the functional areas of distribution, restoration, definition, and preservation.

Acquisition Process Components

17. Acquisition activities will not function normally within the combat support arena during time of war.

26. Prepositioning of material provides immediate availability of material required by deploying forces.

27. Prepositioning ties up supply assets making it unavailable for other uses.

67. Acquisition functions will be hampered by the complexity of the modern weapons systems and will not be able to respond rapidly during the conflict.

Maturation Process Components

36. Development of men and equipment will happen prior to a conflict, resulting in better prepared men and equipment.

37. The practice of using equipment and men in a combat simulation falls short of incorporating the realities that will be seen during a real conflict.

38. It is necessary that the logistician become aware of the capabilities of the tactician.

Distribution Process Components

20. Distribution of assets provides the means whereby preservation and restoration are accomplished.

22. Foreign relations has an impact upon distribution processes and concepts.

23. Separation of assets causes distribution problems and impacts on the method of distributing assets.

24. Common supply items for combat units should be centrally located in forward echelon areas to facilitate ease of obtaining items by all forces in the area.

25. Containerization processes should be improved with specially constructed vehicles being used to provide transportation services.

29. Distrust of the distribution process cause operational commanders to overrequisition material from supply points.

Integration Process Components

21. Integration insures maximum commonality between equipment and repair parts in the field.

56. Protection of men and equipment will be hindered by the complexity of current weapons systems.

73. The management style of the operational commander will affect the success of the mission.

Preservation Process Components

51. During the initial phases of the conflict, initial

requirements will be primarily in the preservation of men and equipment.

52. Separating men and equipment into small functional units will provide the largest degree of preservation during the conflict.

53. Preservation processes during the conflict will rely heavily upon initial construction capabilities.

54. Use of special systems and platforms will enhance the protection capabilities of combat units.

55. A thorough understanding of all sea-ground-air threats is mandatory in order for the design of protection plans.

57. Protection of men and equipment will be hindered by the lack of adequate protection concepts.

58. The protection of basic human requirements, (ie, food, shelter, etc.,) will require extensive expenditures of manpower and money.

Restoration Process Components

18. Maintainability acknowledges maturation of equipment.

30. Prepositioning of equipment aids in restoring equipment quickly during conflict.

31. During periods of conflict, restoration and maintainance of information functions will be necessary to ensure that combat support will be accomplished correctly.

32. The restoration process will be accomplished at or near the forward battle line.

33. Current repair jobs are so complex that availability of fully capable equipment will decrease rapidly during a conflict.

34. Nonfunctional equipment must quickly be delivered to the appropriate level of repair.

35. When equipment and men are dispersed the ability to restore and maintain assets is directly diminished as a function of distance from facilities.

Disposition Process Components

19. Removal of non-functioning men and equipment from the combat zone is a necessary aspect of combat support.

46. Removal of degraded equipment during the conflict will require understanding of cannibalization processes.

47. Removal of unneeded men and equipment might require a significant portion of initial distribution activities.

48. The combat worth of a specific asset, be it men or equipment, will be the determining factor for allowing it to remain in the conflict area.

49. Peacetime methods of disposal as well as control over them will disappear during the conflict.

50. Constant communication with allies and their desires regarding disposal of assets will increase during the conflict.

Investigative Question Number 4 (How does the current doctrine become incorporated into the tactical environment?) is answered by the following:

2. Past experience has impact on formation of strategic, tactical and logistical planning.

8. The primary limiting factor for combat support is the availability of money.

39. The formal education in logistics and tactics that the operational commander has recieved will have a strong impact on the final combat support plan.

42. During the development process of the plan, combat support concepts will tend to become simplified.

43. The need for integration of combat support concepts between U.S. forces and our allies will be great.

44. Integration must happen among material, manpower, information and facilities.

45. The logistics aspect of combat support will require more integration does tactics and strategy.

59. An understanding of the expected conflict area must include information on manpower requirements.

60. An understanding of the expected conflict area must include information on equipment requirements.

61. An understanding of the expected conflict area must include information on facilities requirements.

62. An understanding of the expected conflict area must include information on transportation requirements.

63. An underlying assumption of all combat support plans is the need to preserve the maximum number of men and equipment possible.

64. An understanding of the combat support requirements will basically generate a grocery list of the tacticians' requirements to obtain the desired goal.

65. The most pressing problem in the acquisition area will be the lack of a responsive industrial base.

66. Political and economic factors might severely limit the ability to continually have acquisition processes function at the level which will be required during the conflict.

74. Deciding if an aspect of the combat support plan is appropriate for a specific mission is a judgment call by the operational commander.

75. The expected results of an aspect of the combat support plan in terms of losses and gains of men and equipment is a strong determining factor for including that specific aspect into the operational environment.

76. Only if an aspect of the plan is acceptable in terms of asset losses should it be included into the overall operational plan.

77. The operational experiences of the operational commander play a major part in the acceptance of the combat support plan.

78. The strategic goal exerts a strong influence on the acceptance of a combat support plan.

79. The ease of incorporating a combat support plan into the operational plan has a great influence on acceptance.

80. The use and availability of portable data processing equipment will help in the acceptance of a proposed combat support plan.

Investigative Question Number 5 (How does the commanding officer of a unit obtain knowledge of the current doctrine which is affecting the tactical situation?) is answered by the following:

9. Strategists inform both logisticians and tacticians of strategic requirements at the same time.

11. Tacticians see the logisticians as business managers.

12. Combat support plans provide information on how to obtain, move and maintain equipment and men for war.

13. Peacetime tactical operations adequately prepare men and equipment for war.

14. Peacetime combat support operations adequately practice for war.

16. Inter-communications between tacticians and logisticians are necessary for effective combat support.

40. During the actual conflict, combat support activities will become decentralized.

41. During the actual conflict, combat support decisions must be made on the spot.

68. Knowledge of U.S. and allied force capabilities will be obtained by a careful review of the combat support plan.

70. Control over the developed combat support plan is the means of assuring obtainment of the strategic goals.

71. The operational environment will function as the consumer of logistical assets, and as such will be restricted by those assets.

72. The management style of the operational commander will affect the effectiveness of the combat support plan.

81. The use and availability of portable data processing equipment will assist in use of any developed combat support plan.

82. From previous experiences, operational commanders understand the advantages a developed combat support plan has on operational situations.

83. Operational commanders assume that the combat support plan is complete and concise.

84. In order to understand the combat support plan the operational commander conducts peacetime operations as if during a time of conflict.

85. By maintaining strict control over combat support plans, the operation commander knows of the effects upon his assigned mission.

86. Operational commanders insure cross-training of men between the areas of tactics and logistics to increase knowledge of the influences combat support plans have on operations.

87. Operational commanders insist on the use and development of "Battle Books" containing important information from the combat support plan.

88. Operational commanders have an instruction which informs them about combat support plans.

89. Operational commanders constantly stress the need for communication between tacticians and logisticians.

90. Logisticians are intimately familiar with the tactical plan as developed by the operational commander.

91. Logisticians are able to relay to the operational commander the reasons that certain logistical functions are dictated in the combat support plan.

92. "Battle Books" aid in understanding the influence of combat support plans on operations.

Appendix E: Critical Values of TL for the Wilcoxon Rank Sum Test

alpha = .05 for a two tailed test

| | n1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|----|----|---|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| n2 | | | | | | | | | | | | | | | |
| 4 | | | | 10 | | | | | | | | | | | |
| 5 | | | 6 | 11 | 17 | | | | | | | | | | |
| 6 | | | 7 | 12 | 18 | 26 | | | | | | | | | |
| 7 | | | 7 | 13 | 20 | 27 | 36 | | | | | | | | |
| 8 | | 3 | 8 | 14 | 21 | 29 | 38 | 49 | | | | | | | |
| 9 | | 3 | 8 | 15 | 22 | 31 | 40 | 51 | 63 | | | | | | |
| 10 | | 3 | 9 | 15 | 23 | 32 | 42 | 53 | 65 | 78 | | | | | |
| 11 | | 4 | 9 | 16 | 24 | 34 | 44 | 55 | 68 | 81 | 96 | | | | |
| 12 | | 4 | 10 | 17 | 26 | 35 | 46 | 58 | 71 | 85 | 99 | 115 | | | |
| 13 | | 4 | 10 | 18 | 27 | 37 | 48 | 60 | 73 | 88 | 103 | 119 | 137 | | |
| 14 | | 4 | 11 | 19 | 28 | 38 | 50 | 63 | 76 | 91 | 106 | 123 | 141 | 160 | |
| 15 | | 4 | 11 | 20 | 29 | 40 | 52 | 65 | 79 | 94 | 110 | 127 | 145 | 164 | 185 |
| 16 | | 4 | 12 | 21 | 31 | 42 | 54 | 67 | 82 | 97 | 114 | 131 | 150 | 169 | |
| 17 | | 5 | 12 | 32 | 43 | 56 | 70 | 84 | 100 | 117 | 135 | 154 | | | |
| 18 | | 5 | 13 | 22 | 33 | 45 | 58 | 72 | 103 | 121 | 139 | | | | |
| 19 | | 5 | 13 | 23 | 34 | 46 | 60 | 74 | 90 | 107 | 124 | | | | |
| 20 | | 5 | 14 | 24 | 35 | 48 | 62 | 77 | 93 | 110 | | | | | |
| 21 | | 6 | 14 | 25 | 37 | 50 | 64 | 79 | 95 | | | | | | |
| 22 | | 6 | 15 | 26 | 38 | 51 | 66 | 82 | | | | | | | |
| 23 | | 6 | 15 | 27 | 39 | 53 | 68 | | | | | | | | |
| 24 | | 6 | 16 | 28 | 40 | 55 | | | | | | | | | |
| 25 | | 6 | 16 | 28 | 42 | | | | | | | | | | |
| 26 | | 7 | 17 | 29 | | | | | | | | | | | |
| 27 | | 7 | 17 | | | | | | | | | | | | |
| 28 | | 7 | | | | | | | | | | | | | |

Extract from Table A 10 in Statistical Methods, 6th edition.
[39:555]

Appendix F: Critical Values of Spearman's Rank Correlation
Coefficient

alpha = .05 for a two-tailed test of $H_0: \rho_s = 0$.

| n | alpha = .025 |
|----|--------------|
| 5 | - |
| 6 | .886 |
| 7 | .786 |
| 8 | .738 |
| 9 | .683 |
| 10 | .648 |
| 11 | .623 |
| 12 | .591 |
| 13 | .566 |
| 14 | .545 |
| 15 | .525 |
| 16 | .507 |
| 17 | .490 |
| 18 | .476 |
| 19 | .462 |
| 20 | .450 |
| 21 | .438 |
| 22 | .428 |
| 23 | .418 |
| 24 | .409 |
| 25 | .400 |
| 26 | .392 |
| 27 | .385 |
| 28 | .377 |
| 29 | .370 |
| 30 | .364 |

Extract from Table XVII in Statistics For Business and Economics, 3rd edition (25:982).

Appendix G: Statistical Analysis System (SAS) Programs Used

I. Program used to determine individual population modes, medians, and Spearman Rank Correlation Coefficients.

```
options linesize=78;
data (filename for data);
infile (filename with required data);
input Number Organ $ (question responses);
list;
proc sort;
  by organ;
proc univariate freq plot;
  by organ;
proc corr spearman;
  by organ;
```

II. Program use to determine combined population modes, medians, and Spearman Rank Correlation Coefficients.

```
options linesize=78;
data (filename for data);
infile (filename with required data);
input Number Organ $ (question responses);
list;
proc univariate freq plot;
proc corr spearman;
```

Appendix H: Results of the First Delphi Round

| | <u>Question Number</u> | | | | | | | | |
|----|------------------------|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 6 | 6 | 7 | 3 | 5 | 5 | 2 | 2 | 6 |
| 2 | 6 | 3 | 4 | 2 | 7 | 4 | 4 | 6 | 2 |
| 3 | | | | | | | | | |
| 4 | 7 | 5 | 5 | 6 | 4 | 5 | 6 | 5 | 3 |
| 5 | | | | | | | | | |
| 6 | 7 | 2 | 1 | 5 | 2 | 1 | 1 | 4 | 2 |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | 7 | 7 | 3 | 7 | 1 | 5 | 6 | 7 | 2 |
| 10 | 6 | 5 | 4 | 5 | 3 | 4 | 5 | 3 | 5 |
| 11 | 6 | 6 | 7 | 4 | 4 | 6 | 7 | 7 | 5 |
| 12 | 6 | 6 | 3 | 4 | 5 | 5 | 5 | 6 | 3 |
| 13 | 2 | 3 | 5 | 5 | 3 | 5 | 4 | 5 | 3 |
| 14 | | | | | | | | | |
| 15 | 6 | 6 | 5 | 6 | 6 | 6 | 5 | 6 | 4 |
| 16 | 5 | 6 | 5 | 6 | 3 | 5 | 3 | 5 | 3 |
| 17 | 7 | 7 | 7 | 5 | 6 | 6 | 6 | 2 | 4 |
| 18 | 7 | 5 | 4 | 2 | 2 | 3 | 2 | 1 | 3 |
| 19 | 1 | 7 | 6 | 2 | 1 | 6 | 1 | 1 | 4 |
| 20 | 6 | 5 | 6 | 2 | 7 | 6 | 6 | 3 | 1 |
| 21 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 5 | 2 |
| 22 | 7 | 7 | 5 | 5 | 7 | 4 | 4 | 6 | 5 |
| 23 | 7 | 7 | 3 | 6 | 6 | 2 | 7 | 6 | 1 |
| 24 | | | | | | | | | |
| 25 | 5 | 6 | 5 | 6 | 3 | 6 | 6 | 3 | 2 |
| 26 | 6 | 6 | 2 | 2 | 5 | 5 | 5 | 5 | 4 |
| 27 | 6 | 7 | 7 | 6 | 2 | 5 | 6 | 3 | 3 |
| 28 | 6 | 3 | 6 | 1 | 7 | 5 | 7 | 7 | 1 |
| 29 | 6 | 5 | 3 | 4 | 2 | 7 | 7 | 5 | 4 |
| 30 | 2 | 5 | 5 | 2 | 2 | 3 | 6 | 2 | 1 |

| | <u>Question Number</u> | | | | | | | |
|----|------------------------|-----|-----|-----|-----|-----|-----|-----|
| | 10a | 10b | 10c | 10d | 10e | 10f | 10g | 10h |
| 1 | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 7 |
| 2 | 5 | 3 | 2 | 5 | 5 | 2 | 3 | 1 |
| 3 | | | | | | | | |
| 4 | 5 | 5 | 3 | 4 | 5 | 3 | 4 | 2 |
| 5 | | | | | | | | |
| 6 | 6 | 6 | 4 | 3 | 6 | 5 | 6 | 3 |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | 5 | 4 | 5 | 5 | 5 | 4 | 6 | 4 |
| 11 | 7 | 5 | 4 | 4 | 4 | 7 | 7 | 7 |
| 12 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 3 |
| 13 | 6 | 4 | 5 | 4 | 4 | 5 | 5 | 5 |
| 14 | | | | | | | | |
| 15 | 6 | 5 | 5 | 5 | 6 | 6 | 6 | 5 |
| 16 | 6 | 3 | 6 | 6 | 6 | 6 | 6 | 5 |
| 17 | 7 | 3 | 7 | 7 | 7 | 7 | 7 | 5 |
| 18 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 19 | 7 | 4 | 4 | 2 | 7 | 3 | 5 | 3 |
| 20 | 6 | 5 | 5 | 4 | 6 | 4 | 5 | 3 |
| 21 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 5 |
| 22 | 7 | 7 | 7 | 7 | 4 | 7 | 7 | 7 |
| 23 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 24 | | | | | | | | |
| 25 | 3 | 5 | 4 | 6 | 3 | 4 | 5 | 4 |
| 26 | 6 | 2 | 5 | 3 | 5 | 5 | 6 | 5 |
| 27 | 5 | 3 | 5 | 2 | 5 | 3 | 4 | 2 |
| 28 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 29 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 30 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | 3 | 6 | 2 | 2 | 5 | 6 | 7 | 2 | 5 | 4 |
| 2 | 5 | 3 | 1 | 1 | 4 | 7 | 7 | 6 | 7 | 2 |
| 3 | | | | | | | | | | |
| 4 | 6 | 4 | 3 | 4 | 5 | 5 | 5 | 4 | 6 | 4 |
| 5 | | | | | | | | | | |
| 6 | 1 | 6 | 1 | 4 | 2 | 7 | 1 | 7 | 7 | 1 |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 3 | . | 1 | 1 | . | 7 | 7 | 5 | 7 | . |
| 10 | 4 | 5 | 2 | 2 | 4 | 7 | 7 | 3 | 7 | 4 |
| 11 | 4 | 7 | 2 | 2 | 5 | 7 | 6 | 6 | 6 | 4 |
| 12 | 5 | 5 | 3 | 3 | 3 | 7 | 6 | 5 | 5 | 4 |
| 13 | 6 | 6 | 5 | 4 | 5 | 5 | 5 | 5 | 6 | 3 |
| 14 | | | | | | | | | | |
| 15 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 2 | 4 |
| 16 | 2 | 6 | 3 | 2 | 6 | 7 | 6 | 6 | 4 | 6 |
| 17 | 4 | 7 | 3 | 3 | 3 | 7 | 7 | 6 | 7 | 5 |
| 18 | 5 | 6 | 2 | 2 | 7 | 7 | 1 | 5 | 7 | 7 |
| 19 | 3 | 5 | 3 | 1 | 3 | 6 | 6 | 2 | 5 | 6 |
| 20 | 5 | 6 | 4 | 3 | 6 | 7 | . | 6 | 5 | 5 |
| 21 | 6 | 6 | 2 | 2 | 6 | 6 | 6 | 6 | 5 | 6 |
| 22 | 4 | 7 | 4 | 4 | 7 | 7 | 7 | 7 | 7 | 2 |
| 23 | 6 | 6 | 2 | 2 | 6 | 7 | 1 | 6 | 7 | 5 |
| 24 | | | | | | | | | | |
| 25 | 5 | 6 | 3 | 3 | 3 | 6 | 6 | 6 | 5 | 5 |
| 26 | 4 | 6 | 3 | 3 | 5 | 7 | 6 | 3 | 6 | 5 |
| 27 | 5 | 5 | 3 | 3 | 2 | 7 | 6 | 5 | 6 | 5 |
| 28 | 7 | 6 | 1 | 1 | 6 | 7 | 6 | 5 | 6 | . |
| 29 | 4 | 7 | 1 | 1 | 6 | 7 | 3 | 6 | 7 | 1 |
| 30 | 5 | 5 | 2 | 3 | 6 | 7 | 5 | 7 | 6 | 5 |

| | | <u>Question Number</u> | | | | | | | | | |
|---|----|------------------------|----|----|----|----|----|----|----|----|----|
| | | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| R E S P O N D E N T S | 1 | 5 | 6 | 7 | 1 | 6 | 1 | 3 | 7 | 5 | 6 |
| | 2 | 4 | 6 | 4 | 6 | 6 | 5 | 6 | 7 | 5 | 5 |
| | 3 | | | | | | | | | | |
| | 4 | 4 | 6 | 4 | 6 | 6 | 6 | 5 | 5 | 5 | 4 |
| | 5 | | | | | | | | | | |
| | 6 | 4 | 7 | 6 | 2 | 1 | 6 | 2 | 7 | 7 | 5 |
| | 7 | | | | | | | | | | |
| | 8 | | | | | | | | | | |
| | 9 | 6 | 7 | . | 4 | 4 | 4 | 7 | 5 | 6 | 4 |
| | 10 | 5 | 7 | 6 | 5 | 7 | 6 | 2 | 6 | 6 | 6 |
| | 11 | 5 | 6 | 6 | 6 | 6 | 5 | 6 | 7 | 6 | 6 |
| | 12 | 5 | 6 | 4 | 5 | 3 | 5 | 3 | 6 | 3 | 5 |
| | 13 | 2 | 5 | 5 | 5 | 4 | 5 | 6 | 6 | 5 | 5 |
| | 14 | | | | | | | | | | |
| | 15 | 5 | 5 | 2 | 2 | 6 | 5 | 5 | 5 | 5 | 5 |
| | 16 | 2 | 7 | 3 | 2 | 4 | 5 | 5 | 6 | 6 | 5 |
| | 17 | 7 | 7 | 7 | 3 | 6 | 6 | 5 | 6 | 5 | 7 |
| | 18 | 7 | 7 | 4 | 7 | 7 | 7 | 2 | 7 | 5 | 6 |
| | 19 | 5 | 7 | . | 1 | 6 | 4 | 3 | 6 | 2 | 4 |
| | 20 | 5 | 7 | 4 | 6 | 3 | 6 | 6 | 5 | 6 | 4 |
| | 21 | 4 | 6 | 6 | 5 | 4 | 6 | 6 | 6 | 5 | 6 |
| | 22 | 7 | 7 | 7 | 6 | 1 | 4 | 6 | 7 | 6 | 4 |
| | 23 | 6 | 7 | 6 | 2 | 1 | 5 | 2 | 7 | 7 | 7 |
| | 24 | | | | | | | | | | |
| | 25 | 5 | 6 | 6 | 4 | 6 | 6 | 5 | 5 | 5 | 4 |
| | 26 | 4 | 6 | 5 | 4 | 3 | 6 | 6 | 6 | 4 | 2 |
| | 27 | 5 | 6 | 6 | 6 | 2 | 6 | 5 | 5 | 6 | 5 |
| | 28 | . | 6 | 6 | 1 | 2 | 5 | 5 | 5 | 5 | 5 |
| | 29 | 5 | 6 | 3 | 4 | 4 | 6 | 5 | 7 | 4 | 3 |
| | 30 | . | 6 | 6 | 5 | 4 | 5 | 5 | 6 | 5 | 3 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | 7 | 4 | 6 | 6 | 2 | 3 | 6 | 6 | 2 | 5 |
| 2 | 6 | 3 | 7 | 7 | 6 | 5 | 7 | 7 | 6 | 7 |
| 3 | | | | | | | | | | |
| 4 | 4 | 5 | 3 | 5 | 5 | 4 | 5 | 6 | 6 | 5 |
| 5 | | | | | | | | | | |
| 6 | 7 | 2 | 7 | 7 | 2 | 2 | 6 | 6 | 1 | 4 |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | . | 4 | 6 | 4 | 5 | . | 7 | 7 | 5 | 4 |
| 10 | 6 | 6 | 5 | 7 | 5 | 2 | 6 | 7 | 6 | 4 |
| 11 | 7 | 5 | 5 | 6 | 3 | 3 | 7 | 5 | 4 | 6 |
| 12 | 6 | 6 | 5 | 5 | 5 | 4 | 5 | 6 | 2 | 5 |
| 13 | 6 | 3 | 3 | 5 | 3 | 3 | 5 | 5 | 5 | 5 |
| 14 | | | | | | | | | | |
| 15 | 5 | 5 | 6 | 6 | 6 | 6 | 5 | 7 | 6 | 4 |
| 16 | 6 | 3 | 6 | 7 | 3 | 3 | 6 | 7 | 5 | 6 |
| 17 | 7 | 4 | 5 | 7 | 2 | 5 | 5 | 7 | 7 | 7 |
| 18 | 7 | 5 | 3 | 7 | 5 | 5 | 5 | 7 | 3 | 4 |
| 19 | 6 | 4 | 4 | 5 | 4 | 4 | 6 | 6 | 6 | 5 |
| 20 | 6 | 6 | 3 | 5 | 5 | 4 | 4 | 5 | 7 | 4 |
| 21 | 6 | 5 | 5 | 5 | 6 | 4 | 6 | 5 | 6 | 6 |
| 22 | 7 | 4 | 5 | 5 | 6 | 1 | 6 | 5 | 4 | 6 |
| 23 | 6 | 4 | 6 | 7 | 5 | 6 | 7 | 6 | 5 | 6 |
| 24 | | | | | | | | | | |
| 25 | 5 | 5 | 5 | 5 | 4 | 3 | 5 | 6 | 5 | 6 |
| 26 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 |
| 27 | 6 | 6 | 6 | 6 | 5 | 5 | 7 | 7 | 3 | 5 |
| 28 | 6 | 6 | 7 | 6 | 7 | 6 | 4 | 7 | 7 | . |
| 29 | 6 | 5 | 2 | 7 | 7 | 7 | 6 | 3 | 6 | 7 |
| 30 | . | 4 | 4 | 4 | 5 | . | 6 | 7 | 6 | 5 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 1 | 7 | 6 | 6 | 6 | 2 | 5 | 6 | 5 | 6 | 6 |
| 2 | 7 | 3 | 7 | 4 | 4 | 5 | 5 | 7 | 6 | 3 |
| 3 | | | | | | | | | | |
| 4 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 6 | 6 | 4 |
| 5 | | | | | | | | | | |
| 6 | 7 | 6 | 4 | 7 | 1 | 6 | 7 | 7 | 3 | 1 |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 4 | 5 | 6 | 6 | 4 | 3 | 3 | 5 | 5 | 4 |
| 10 | 6 | 6 | 6 | 6 | 4 | 6 | 7 | 3 | 3 | 5 |
| 11 | 6 | 6 | 7 | 7 | 4 | 5 | 6 | 5 | 6 | 5 |
| 12 | 6 | 6 | 6 | 6 | 7 | 4 | 5 | 2 | 5 | 2 |
| 13 | 5 | 4 | 5 | 3 | 3 | 5 | 2 | 5 | 3 | 5 |
| 14 | | | | | | | | | | |
| 15 | 6 | 5 | 6 | 6 | 3 | 6 | 6 | 6 | 6 | 5 |
| 16 | 6 | 2 | 3 | 6 | 4 | 5 | 3 | 5 | 5 | 3 |
| 17 | 5 | 5 | 7 | 7 | 6 | 7 | 4 | 5 | 2 | 5 |
| 18 | 7 | 7 | 7 | 7 | 7 | 7 | 2 | 2 | 4 | 5 |
| 19 | 4 | 2 | 6 | 6 | 4 | 6 | 3 | 3 | 3 | 4 |
| 20 | 6 | 5 | 5 | 5 | 4 | 5 | 4 | 6 | 5 | 2 |
| 21 | 6 | 5 | 6 | 6 | 6 | 6 | 3 | 6 | 6 | 6 |
| 22 | 7 | 3 | 7 | 7 | 7 | 7 | 6 | 6 | 4 | 7 |
| 23 | 6 | 3 | 6 | 7 | 4 | 2 | 2 | 1 | 4 | 4 |
| 24 | | | | | | | | | | |
| 25 | 6 | 3 | 5 | 5 | 4 | 5 | 3 | 5 | 4 | 5 |
| 26 | 5 | 6 | 6 | 6 | 4 | . | 5 | 2 | 5 | 5 |
| 27 | 2 | 2 | 6 | 6 | 6 | 5 | 5 | 5 | 6 | 6 |
| 28 | 7 | 6 | 7 | 7 | 7 | . | 6 | 7 | 6 | 6 |
| 29 | 5 | 2 | 7 | 7 | 3 | 6 | 1 | 1 | 3 | 3 |
| 30 | 6 | 5 | 7 | 7 | 6 | 4 | 5 | 6 | 5 | 5 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | 7 | 6 | 3 | 6 | 6 | 4 | 6 | 3 | 6 | 6 |
| 2 | 5 | 5 | 4 | 4 | 7 | 7 | 4 | 7 | 4 | 4 |
| 3 | | | | | | | | | | |
| 4 | 5 | 5 | 5 | 6 | 5 | 3 | 6 | 5 | 5 | 5 |
| 5 | | | | | | | | | | |
| 6 | 1 | 1 | 1 | 1 | 6 | 7 | 4 | 1 | 7 | 7 |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 5 | 6 | 4 | . | 6 | 2 | 6 | 6 | 3 | 3 |
| 10 | 6 | 4 | 5 | 4 | 5 | 5 | 5 | 6 | 5 | 5 |
| 11 | . | 5 | 4 | 4 | 6 | 6 | 3 | 6 | 6 | 6 |
| 12 | 6 | 6 | 6 | 4 | 5 | 5 | 5 | 6 | 6 | 6 |
| 13 | 3 | 4 | 5 | 5 | 5 | 4 | 3 | 3 | 3 | 6 |
| 14 | | | | | | | | | | |
| 15 | 6 | 5 | 5 | 4 | 7 | 6 | 5 | 5 | 6 | 6 |
| 16 | 3 | 6 | 5 | 4 | 6 | 5 | 5 | 3 | 6 | 6 |
| 17 | 3 | 6 | 4 | 6 | 7 | 2 | 5 | 3 | 7 | 7 |
| 18 | 3 | 4 | 2 | 5 | 3 | 2 | 5 | 4 | 4 | 5 |
| 19 | 6 | 5 | 4 | 4 | 6 | 2 | 5 | 3 | 6 | 6 |
| 20 | 5 | 4 | 3 | 4 | 7 | 3 | 4 | 4 | 6 | 6 |
| 21 | 6 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 |
| 22 | 7 | 7 | 7 | 5 | 7 | 5 | 7 | 5 | 6 | 6 |
| 23 | 3 | 4 | 6 | 5 | 7 | 7 | 4 | 4 | 6 | 7 |
| 24 | | | | | | | | | | |
| 25 | 3 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 6 |
| 26 | 1 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 27 | 5 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 6 | 6 |
| 28 | 7 | 7 | . | 4 | 7 | 7 | 7 | 5 | 7 | 7 |
| 29 | 2 | 4 | 6 | 4 | 7 | 1 | 7 | 7 | 5 | 6 |
| 30 | 5 | 4 | 5 | . | 7 | 6 | 6 | 6 | 7 | 7 |

| | | <u>Question Number</u> | | | | | | | | | |
|-------------|----|------------------------|----|----|----|----|----|----|----|----|----|
| | | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| RESPONDENTS | 1 | 7 | 7 | 6 | 6 | 7 | 6 | 7 | 5 | 5 | 3 |
| | 2 | 4 | 4 | 7 | 5 | 7 | 6 | 7 | 5 | 3 | 4 |
| | 3 | | | | | | | | | | |
| | 4 | 5 | 5 | 2 | 5 | 2 | 6 | 4 | 3 | 4 | 5 |
| | 5 | | | | | | | | | | |
| | 6 | 7 | 7 | 4 | 6 | 6 | 7 | 6 | 1 | 4 | 4 |
| | 7 | | | | | | | | | | |
| | 8 | | | | | | | | | | |
| | 9 | 3 | 3 | 6 | 5 | 4 | 6 | 2 | 5 | . | 2 |
| | 10 | 5 | 6 | 4 | 5 | 3 | 5 | 5 | 5 | 6 | 5 |
| | 11 | 5 | 6 | 6 | 4 | 5 | 2 | 5 | 3 | 4 | 3 |
| | 12 | 7 | 6 | 6 | 4 | 5 | 7 | 5 | 6 | 5 | 6 |
| | 13 | 5 | 6 | 5 | 4 | 5 | 5 | 5 | 4 | 5 | 5 |
| | 14 | | | | | | | | | | |
| | 15 | 6 | 6 | 6 | 6 | 6 | 7 | 4 | 5 | 6 | 3 |
| | 16 | 6 | 6 | 5 | 5 | 5 | 5 | 6 | 4 | 4 | 2 |
| | 17 | 7 | 7 | 7 | 1 | 7 | 7 | 4 | 6 | 1 | 5 |
| | 18 | 5 | 7 | 5 | 3 | 7 | 2 | 6 | 2 | 5 | 2 |
| | 19 | 6 | 6 | 6 | 4 | 2 | 7 | 5 | 2 | 1 | 2 |
| | 20 | 6 | 6 | 4 | 3 | 5 | 2 | 6 | 4 | 4 | 5 |
| | 21 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 |
| | 22 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 4 | 4 |
| | 23 | 7 | 7 | 2 | 7 | 2 | 7 | 4 | 2 | 1 | 1 |
| | 24 | | | | | | | | | | |
| | 25 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | 26 | 5 | 5 | 5 | 5 | 2 | 5 | 5 | 5 | 5 | . |
| | 27 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | 28 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 5 | 6 | 6 |
| | 29 | 6 | 6 | 7 | 6 | 3 | 7 | 3 | 5 | 3 | 5 |
| | 30 | 7 | 7 | 4 | 4 | 5 | 5 | 3 | 5 | 3 | 5 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | 7 | 3 | 7 | 6 | 5 | 4 | 7 | 7 | 6 | 4 |
| 2 | 7 | 7 | 7 | 6 | 4 | 4 | 5 | 6 | 5 | 2 |
| 3 | | | | | | | | | | |
| 4 | 6 | 6 | 6 | 5 | 5 | 4 | 6 | 6 | 5 | 4 |
| 5 | | | | | | | | | | |
| 6 | 7 | 7 | 7 | 7 | 6 | 6 | 7 | 4 | 6 | 3 |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 6 | 6 | 5 | 7 | 6 | 6 | 7 | 7 | 6 | 2 |
| 10 | 5 | 7 | 6 | 5 | 5 | 3 | 6 | 4 | 6 | 5 |
| 11 | 6 | 6 | 6 | 6 | . | 5 | 5 | 6 | 3 | 5 |
| 12 | 7 | 7 | 7 | 7 | 6 | 6 | 7 | 7 | 6 | 5 |
| 13 | 5 | 5 | 5 | 5 | 5 | 4 | 6 | 5 | 5 | 5 |
| 14 | | | | | | | | | | |
| 15 | 5 | 5 | 6 | 6 | 6 | 5 | 5 | 6 | 6 | 6 |
| 16 | 3 | 6 | 6 | 6 | 5 | 2 | 6 | 5 | 5 | 4 |
| 17 | 5 | 5 | 5 | 7 | 7 | 6 | 7 | 7 | 7 | 6 |
| 18 | 5 | 6 | 6 | 1 | 2 | 2 | 3 | 3 | 1 | 1 |
| 19 | 6 | 5 | 6 | 7 | 4 | 4 | 6 | 6 | 4 | 4 |
| 20 | 7 | 5 | 6 | 4 | 5 | 4 | 3 | 5 | 5 | 4 |
| 21 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 22 | 6 | 6 | 7 | 5 | 6 | 3 | 5 | 5 | 7 | 6 |
| 23 | 7 | 5 | 6 | 2 | 4 | 2 | 7 | 6 | 6 | 4 |
| 24 | | | | | | | | | | |
| 25 | 6 | 6 | 6 | 5 | 4 | 4 | 5 | 4 | 5 | 4 |
| 26 | 6 | 5 | 6 | 3 | 5 | 5 | 5 | 5 | 5 | 4 |
| 27 | 6 | 6 | 7 | 5 | 5 | 4 | 5 | 6 | 6 | 6 |
| 28 | 7 | 7 | 7 | 7 | 6 | 6 | 7 | 6 | 7 | 5 |
| 29 | 7 | 6 | 6 | 5 | 7 | 6 | 6 | 5 | 7 | 5 |
| 30 | 6 | 6 | 6 | 5 | 6 | 3 | 6 | 5 | 5 | 5 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 1 | 5 | 5 | 5 | 3 | 3 | 2 | 6 | 3 | 6 | 3 |
| 2 | 2 | 5 | 3 | 3 | 3 | 2 | 4 | 4 | 3 | 2 |
| 3 | | | | | | | | | | |
| 4 | 5 | 5 | 6 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |
| 5 | | | | | | | | | | |
| 6 | 3 | 4 | 2 | 2 | 2 | 1 | 1 | 6 | 1 | 1 |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 2 | . | . | . | . | . | . | . | 2 | 2 |
| 10 | 6 | 5 | 2 | 3 | 4 | 3 | 5 | 4 | 3 | 3 |
| 11 | 6 | 6 | 2 | 3 | 5 | 3 | 4 | 5 | 5 | 5 |
| 12 | 6 | 6 | 5 | 5 | 5 | 3 | 5 | 6 | 3 | 3 |
| 13 | 5 | 5 | 3 | 3 | 5 | 3 | 4 | 5 | 5 | 3 |
| 14 | | | | | | | | | | |
| 15 | 6 | 6 | 5 | 6 | 6 | 5 | 6 | 6 | 7 | 4 |
| 16 | 4 | 3 | 3 | 3 | 3 | 3 | 4 | 5 | 6 | 3 |
| 17 | 6 | 7 | 5 | 3 | 6 | 4 | 4 | 7 | 6 | 7 |
| 18 | 1 | 3 | 5 | 3 | 2 | 3 | 2 | 1 | 2 | 2 |
| 19 | 6 | 6 | 2 | 1 | 2 | 4 | 3 | 4 | 4 | 4 |
| 20 | 4 | 3 | 5 | 5 | 5 | 3 | 4 | 5 | 3 | 1 |
| 21 | 6 | 6 | 3 | 3 | 6 | 3 | 4 | 4 | 5 | 3 |
| 22 | 6 | 7 | 3 | 6 | 5 | 7 | 4 | 4 | 4 | 5 |
| 23 | 4 | 2 | 4 | 2 | 1 | 1 | 4 | 5 | 2 | 2 |
| 24 | | | | | | | | | | |
| 25 | 5 | 5 | 3 | 5 | 5 | 4 | 5 | 5 | 6 | 3 |
| 26 | 4 | 5 | 6 | 1 | 3 | 1 | 3 | 4 | 3 | 2 |
| 27 | 6 | 6 | 5 | 6 | 5 | 3 | 5 | 3 | 3 | 5 |
| 28 | 6 | 3 | 6 | 2 | 6 | 6 | 4 | 3 | 1 | 2 |
| 29 | 5 | 6 | 3 | 3 | 6 | 3 | 4 | 4 | 6 | 3 |
| 30 | 5 | 6 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 4 |

| | | <u>Question Number</u> | |
|---|----|------------------------|----|
| | | 91 | 92 |
| R E S P O N D E N T S | 1 | 5 | 5 |
| | 2 | 5 | 4 |
| | 3 | | |
| | 4 | 4 | 4 |
| | 5 | | |
| | 6 | 3 | 4 |
| | 7 | | |
| | 8 | | |
| | 9 | 3 | . |
| | 10 | 5 | 5 |
| | 11 | 6 | 4 |
| | 12 | 5 | 5 |
| | 13 | 5 | 4 |
| | 14 | | |
| | 15 | 4 | 6 |
| | 16 | 5 | 4 |
| | 17 | 7 | 4 |
| | 18 | 2 | 2 |
| | 19 | 4 | 5 |
| | 20 | 2 | 4 |
| | 21 | 5 | 4 |
| | 22 | 5 | 5 |
| | 23 | 6 | 4 |
| | 24 | | |
| | 25 | 5 | 6 |
| | 26 | 5 | . |
| | 27 | 5 | 5 |
| | 28 | 5 | 4 |
| | 29 | 6 | 4 |
| | 30 | 5 | 5 |

Appendix I: Comments from the First Delphi Round

Question 1

- This was difficult to answer with a single value. I would say "7" for political and "5" or "4" for economic. But, I chose "6" for the combination and feel uncomfortable with that response.
- Political requirements/constraints most often override all other requirements.
- National objectives underlie or should underlie all strategy.
- In the context of your definition economics does not play in strategy. However, if you are talking about national security objectives, the U.S. does develop an economic strategy.
- Broad definition, but boiled down to these elements I would agree.
- Requirements - could be political objectives constrained by your technology base and economics capability.
- Military was not allowed to win the war in Vietnam.
- To a large extent, the development of a new weapon system is determined based on the current political and economic situation.

Question 2

- Experience should have impact, but I don't see great evidence it does. Fact is, I don't see much evidence experience (history) is studied much, or known by planners, in any element of the military.
- Not a 7 due to mitigating items like turnover, lack of funding, etc.
- Too often in military, past experience is lost when personnel transfer, only infrequently do we take advantage of personal expertise in planning situations.
- We don't always learn from our mistakes.
- Yes. We have to be students of history, even though history can't always predict what will happen in the future.
- Doctrine is at the heart of all strategy - Curtis LeMay.
- It should but don't really believe enough importance is placed on past experience.
- Technological breakthroughs could also become a player such as supersonic/hypersonic flight.
- We build on past mistakes.
- Experience should impact these decisions, but historically experience has been largely ignored.
- The use of lessons learned (from past programs) has been more actively pursued in more recent years.

Question 3

- Based on what you provide, I can't respond. There isn't enough there to provide a base for response. I would say that combat support considerations (what are they?) should

have some impact; but I don't necessarily agree, based on so little content, that combat support considerations should "dictate" the scope of mission goals. It seems clear to me that mission goals should be initially established in a sort of pure manner then later adapted to the realities of combat support capabilities. But, combat support should be caused to struggle to meet mission needs. Mission needs should not usually be reduced merely to "make it easy" on combat support. If you term this adaptation "dictation", then I agree with your statement. Otherwise, I don't.

- This is not so in the Navy, I have seen Admirals blatantly ignore logistical limitations feeling they could force logistics to "work".

- Defense Guidance & Maritime Strategy are heavily dependent on logistics/CombatSupport buildup to be able to achieve goals.

- Not as much as it should.

- Should or do?

- Without support you're a "static display".

- Can't meet goal if you don't have the means to do it.

- Dictate might be too strong of a word. It is a major player; however, in determining your capability to pursue your mission goals - your ability to fight.

- Combat support capability (or lack of it) should play a stronger role in stratgy development unless dollars are available to buy the combat support needed to support strategy.

- I strongly agree; however, I feel most Air Force leaders (operations oriented) don't understand this.

- The tactician must know if the goals are realistically obtainable. He cannot disregard all other elements (logistics and strategy).

- Unfortunately, planning done in a peacetime environment is based on peacetime support requirements.

Question 4

- Again, not enough is given for a good evaluation response. The question is too broad. Obviously, tactics which cannot be supported by logistics would be stupid and probably defeating. I am sure you don't mean that but it seems that's what you say. Therefore, I disagree with the statement.

- Regardless is the kicker.

- Too narrow. Many logisticians are tacticians.

- An operational plan is worthless without logistic consideration - Do we have the wherewithal to implement the plan.

- Regardless of other considerations, may be too simplified. The tactician plans the battles but he has to consider factors which can affect that plan. The tactician provides the plan for carrying out the combat operations which are supported by combat support.

- Answer here and elsewhere where "tactician" is used, assumes the tactician is the doer equivalent with a more

narrow view than the overall commander.

- Must consider available resources.
- I have been involved in acquisition planning rather than tactical planning.

Question 5

- I agree wholeheartly with it. But, there appears no national strategy at this time to assure an adequate industrial base for mobilization in event of war. We do not now have a defense industrial base! All strategic thinking of the country must today be based on a floor of shifting sands. As the USA permits its economic base to shift away from the industrial base to the service, our industrial capability to support war is lost. You can't win a war with hamburgers, video tapes and programs, entertainment, and the rest of the service economy. Yet we seem, as a nation, unable or unwilling to keep an adequate industrial base alive and functioning in our country. I know of no national effort to establish and support a defense mobilization industrial base sufficient to handle military needs immediately on declaration of war or national emergency.

Think of our merchant marine, our shipyards, our steel industry, our heavy machine tool industry, our electronic manufacturing, our airways, our rail system, and so forth. None are truly ready to support a war and I see nothing being done to rectify that condition.

- Strategic plans are developed assuming the industrial base will adjust to meet their needs.

- No - they should not be limited by current available industrial base. A crystal ball should be part of strategic planning.

- Not so much industrial base as Congressional funding to exploit that base.

- Industrial preparedness is a tough issue to work in peacetime.

- Strategic plans are limited by the mobilized industrial base as well as, forces, people, theater.

- In the short term - absolutely. Long range may take into account new techniques.

- Strategic plans are made based on your National Objectives, but are significantly limited by the industrial base and current baseline force structure and includes FYDP.

- At the extreme - a protracted war - the answer is "6".
For a short war - the answer is "2".

- Also on current available forces/support.

- Execution of the plans is limited. Planners often do not consider this a constraint.

- In the short-run this may be true, but part of our job is to increase and strengthen the industrial base.

Question 6

- Once more, I can't respond with the information given.

- At the extreme - a protracted war - the answer is "6".
For a short war - the answer is "2".

- As exemplified by the current "Ten Division in Ten Days" issues.
- Yes, although creativity might help work around some timing problems.
- Combat support impacts on your ability to sustain warfare and can again be a major player in the campaign, but "dictates the timing" is a tad strong.
- How fast can you get the forces where you need them?
- Strategic goals are set based on the overall War Mobilization Plan.

Question 7

- Once more, I can't respond with the information given.
- Too often tacticians feel that supply keeps a secret reserve; therefore, stated limitations don't apply.
- Current and past tours show lack of "bullets" & logistics infrastructure to be show stoppers.
- Yes, but work around can help.
- Tactics is also limited by political considerations, often to the exclusion of other considerations.
- Must develop tactics on what is versus what might be.
- Availability of material in supply system will impact sustainment of the campaign.
- Answer is "7" if all sources - not just Air Force are considered part of the available supply system (eg. Host nation, use of enemy resources, etc.)
- Can't fight without material.
- When we go to war, it will be with what is on hand at the time. By the time a surge takes place, it will be too late.

Question 8

- I feel having good well trained personnel is more important.
- You ask for a specific evaluation of a general question. Money is, of course, a constraining and limiting factor; but so is planning (or lack thereof), leadtime, positioning, and so forth. Under the conditions of generality, my evaluation is reluctantly given at "5 to 6".
- Availability of money is a problem, but the bigger problem is the perception that spending money on support does not increase combat capability.
- Yes, but often fiscal decisions regarding deferral of support systems in favor of new weapons systems is questionable.
- Maybe so in the post-Reagan era. But combat support also depends on people, communications, command and control, material, etc., any of which could be primary depending on situation.
- Primary limiting factor is organization and advocacy. Elements of combat support are fragmented and functionally stovepiped.
- Money is a driver, but industrial base/capability is greater. All the money won't buy nonexistent material.
- The capability of an industrial base is also a primary

player. If we actually have to fight a war, our availability of money may not hold up industry. Availability of money does impact War Readiness Material (WRM/Munitions/Spares Parts/WRSK - on hand assets).

- Also leadtime to procure/train.
- Money is one of the limiters. Motivation and proper distribution of assets are equally limiting.
- To some extent that is true, but at times, the raw material and expertise are not available. The money is needed well in advance of the actual combat support period.

Question 9

- I doubt it! It certainly has not been true in my experience! Nor has it been true in history. The strategic planner normally seems to feel closer to the tactical planner than to the logistics planner. My experience has shown me that inputs to the strategic planners predominantly come from the tactical and rarely, if ever, from logistics. Thus, the strategic planner would, therefore, be more prone to discuss with, or to advise, the tactical planner leaving the logistics planner to be the last advisee, if at all. Too frequently, the strategic and tactical people seem to think they can advise logistics when they know what they want but not at the early stages of determination of goals or means.
- Do strategists know who tacticians and logisticians are?
- Through Defense Guidance, which is routed for input to all concerned for revisions prior to reissuance.
- Should or do?
- Many logisticians are tacticians! Not sure of intent or importance of question.
- To me logisticians are totally ignored in the planning process.
- Hard to say, but AFLC and AC get their marching orders from HQUSAF. Logisticians are concerned with readiness and sustainment. Tacticians are concerned with fighting. Both logisticians and tacticians view through strategists guidance, but logisticians and tacticians are limited by baseline force structure in sustaining and fighting the war.
- Should they - yes "7".
- We logisticians sometimes think we are the last to know.
- Normally a loggie is on the tail end of the info network.
- Logisticians have historically been last in the loop.
- I'm not sure when the tacticians get their information.

The logisticians seem to work about 3-7 years in advance of actual support.

Question 10

- Responses are based on types of information included in current OPLANS.
- I have not seen a Combat Support plan. However, as Combat Support is the subset of logistics in theater, I have answered 10-16 based on my supposition. Combat Support, per se, is not in JCS dictionary of military terms. 10C-E appear more tactical than support.

- The major problems with ops support plans are not in projecting what is needed where & when, but how short falls (men, equipment, etc.) are going to be resolved. Shortfalls are usually resolved by "We will [sic. recoie] move" or "we will contract for it" but what if you can't? To me shortfalls can easily be downfalls.

- Need to be more specific. I believe Question 10-E includes all requirements to support the men and equipment, but not to form a functioning combat unit.

- I assume each question is not considered independently as the only thing combat support plans are composed of. Questions are answered as if each section (A-H) is a part of what combat support plans should be composed of. It's impossible to make a judgment on what they are currently composed of since that will vary from one extreme to the other. AF combat support doctrine provides the eight processes which should be contained in any combat support plan. Your questions 10A-H does not cover all eight processes.

- If standard UTC's (Unit Type Codes) are available, the actual descriptions of what is the UTC is not usually repeated in a plan. When not using a UTC, requirements should be identified. Also if assets are available at the destination these should be listed in the plan & tailored out of the standard package. The plan should cover transportation to, from, and locally, as well as, specify how continuing (& where) support will be handled.

- U.S. Army Combat Support plans are very good in these areas. USAF plans are poor in many of these. USAF can't even agree on how to delete NATO PPP from TPFDD!

- Combat support plans should include all these factors.

- I've not been involved with developing nor working with combat support plans.

- I'm not sure these should not be included in plans, but the level of detail suggested by these questions make it of questionable value.

Question 11

- Perhaps. But, my perception is that they look at the logisticians more often as annoyances and restrainers, rather than as business managers. We certainly need to work harder on these relationships and perceptions.

- Good tacticians see logisticians as team members.

- Possibly, but again many logisticians are tacticians as part of their trade.

- I think they really see them as obstructionists.

- Logisticians are the campaign supporters. The tacticians are the fighters which rely on the logisticians for sustainment of the campaign.

- I really don't know.

Question 12

- I don't know. The combat support plans certainly should

provide this information but my experience says they routinely do not, so I disagree lightly.

- Should.
- These plans do much more.
- They should provide this.
- Again what they do and what they should do may be different.
- I would assume that is true.

Question 13

- Don't believe the answer to this can ever be tested under peacetime conditions.
- No! Peace time activities and tactical operations might do a fine job for developing prepared people for war in flight crews and submarines crews, but they don't for other military and supporting civilian personnel. The norm is for the tactical exercise to be a bureaucratic game for the nonoperational people aimed at acquiring a "good score" regardless of reality and fact.
- During peacetime exercises, we tend to compensate for known shortfalls, and introduce artificialities which give unrealistic results.
- We do not bring realism to our peacetime operations. We merely play computer games.
- Reliance on Reserve Personnel and equipment, plus non-funding of ABFC's, only allow for limited war; ie, what actives can do with equipment on hand.
- No. We can't usually or realistically test to total wartime conditions, but this is an area where we need to do better.
- Realistic training is hard to come by.
- They prepare -- adequately is debatable.
- Hard to determine. We do the best we can with the limited resources/exercises - probably, less prepared now than before. Since we have fewer resources to expend.
- Too expensive, too much inconvenience, too many simulations, too much exercise planning, which reduces the fog & friction of actual combat.
- I don't think so. You can't prepare a man for the stress & fog of war. We really don't prepare people to operate when the computers are down, the power is out, and the communications lines are cut.
- We act as if we're running IBM instead of preparing to win wars.
- Too much emphasis is put into peacetime support which does not reflect wartime requirements adequately.

Question 14

- Models and estimates of combat support requirements are only best guesses, but the true answer will never be known until the real thing occurs.
- Absolutely not! Peacetime combat support operations are far too complex and screwed-up to be considered adequate practice for war. Reality of war is not addressed in

peacetime activity. Too much attention goes to "quality of life" and being nice to and for the personnel rather than being instructive in war and combat support efforts. Advance notification of exercises, deployment for specified time limits, efforts to make it easy on everyone, etc., make the usual peacetime efforts a laugh insofar as preparing for war.

- The procedures are the same but the volume is not.
- No realism. Lack of coordination between services to practice for war.
- Reliance on Reserve Personnel and equipment, plus non-funding of ABFC's, only allow for limited war; ie, what actives can do with equipment on hand.
- No. We can't usually or realistically test to total wartime conditions, but this is an area where we need to do better.
- We don't train the way we intend to fight.
- They are the best thing but nothing adequately prepares for war.
- I have limited knowledge in this area. I would expect its worse than tactical operations.
- Too expensive, too much inconvenience, too many simulations, too much exercise planning, which reduces the fog & friction of actual combat.
- I don't think so. You can't prepare a man for the stress & fog of war. We really don't prepare people to operate when the computers are down, the power is out, and the communications lines are cut.
- Exercises such as TAC's Coronet Warrior and SAC's Bull Rider test WRSK sustainability. They are a start.
- Too much simulation and shortfall leads to unrealistic tests of unit capability. We need all military personnel to undergo a Salty DEMO or Silver Flag type exercise regularly.
- Support requirements in a wartime environment are not adequately addressed in peacetime practice.

Question 15

- I can't agree or disagree. You have not in your definitions and instructions related combat support to logistics. I therefore, don't know if you intend combat support as a sub-function of military logistics or vice versa. It is my belief combat support is the reason for military logistics to exist. In other words, combat support is what military logistics does when there is war. Therefore, military logistics is not, in fact, identical to combat support nor is it separate from it. If that seems screwed up, I'm sorry. But, I cannot agree with you that combat support is the interaction between tactics and logistics.
- Yes & No. Combat support does just what the name implies
- support tactics and operational forces/plans. There must be total interaction, but it's because of operational needs in the first place.
- And strategy.

- Combat support allows tactics to be implemented/executed.
- Combat support is a portion of logistics.
- Combat support brings the planning and ultimate outcome together.

Question 16

- Absolutely! We need the 3C's (Communication, Coordination, Cooperation) to be continually active in a two-way effort between tactics and logistics -- and strategy as well.
- Unfortunately - this does not happen enough.
- Yes, if we are assuming tacticians equal operators.
- Define intercommunications. It's definitely a two way-street.
- Tacticians must know support limitations and logisticians must know what the tactician wants to do - he may come up with an alternative means of support.
- The tacticians from the using organizations need to be involved in the upfront acquisition planning.

Question 17

- I think most of acquisition dollars will be spent on those items already ready to produce, not under development.
- Certainly not! Nor will procurement! Nor will most of the other elements of the military. I am saying this on the assumption you mean by "normally" the operations of day-to-day peace time, CONUS, activities.
- Normally is interpreted as "peacetime operation".
- Mobilization removes personnel from civilian work force; shelf stock rapid draw down impact.
- Question not clear - will not function in support arena or will not perform normal functions in combat arena.
- Yes. The industrial base must gear up quickly.
- Acquisition will probably be stepped up.
- Simple question complex answer - What is meant by acquisition activities and would like to discuss.
- Wartime requires mobilization/surgency by the industrial base. Combat support should continue to function in war as in peacetime, but would be costly to mobilize the entire industrial base in peacetime.
- We are not going to advertise, take bids, etc.
- They may be accelerated or some may be halted.
- The acquisition activities will function relatively normal with some work-arounds (shortcuts) required.

Question 18

- Maintainability is not confined only to mature systems.
- I agree but I wish you had defined "maintainability" so I would know what you had in mind by that statement. In the dark I must use my own comfortable definition and that may not be what you had in mind.
- Not always.
- How often are War Reserve Spares Kits updated for relevancy?

- It has to if we are to do proper planning.
- Maturation process takes the military resources obtained from the acquisition process and prepares these resources for combat as part of the aerospace force. Maintainability along with all supportability elements should also be an important consideration in the acquisition process.
- Maintainability deals with the ease and requirement for maintenance. Realibility acknowledges maturation.
- It does in terms of years - but actual experience flying WMP sortie rates for 30-60 days is lacking and is not reflected in WRSK computations.
- The learning curve has a major impact in the area of maintainability.

Question 19

- Absolutely! That's one of the basic reasons for medical evacuation, for example. But, the idea should not be restricted to only "non-functioning" men or equipment. It is just as important and necessary for the nonessential men and equipment to be removed from the combat zone. The only things or people in a combat zone should be those in or subject to being in combat (the fighters) and those essential supporters. Nothing else!!!! We cannot afford to have another Vietnam situation in which the support (?) forces exceeded the combat by a ratio of perhaps 8 or 9 to 1. Much of that was brought about by R&R, quality of life, and so forth -- far from essential to the combat mission.

Generally not addressed or not sufficiently addressed in current planning.

- Often overlooked
- Not needed to support actual combat. It's more of a logistics support problem.
- It's necessary, but not paramount.
- Retrograde needs to be considered medivac, repair, etc. High morale value.
- Only where they (a) impede the war effort or (b) can be restored for reuse and restoration should be done away from the battle zone.
- Yes; NEO, items for repair, wounded, etc.
- May not be realistic for equipment.
- Getting personnel and equipment out is almost as important as getting them in the right place to start with.

Question 20

- Could be true if we're talking about depot level maintenance of items. Some preservation and maintenance can be done locally.

- Again, you don't define terms so each respondent must rely on his/her own definition. Variation is highly probable. What do you mean by "distribution"? By "preservation"? By "restoration"? How does distribution relate to preservation and restoration? I can't see distribution providing "the means" for preservation and restoration under my definition.

- Frequently, because of lack of Host Nation agreement, etc. supplies are malpositioned affecting preservation and utilization.

- Do not understand the statement.
- Yes, but distribution encompasses more important functions such as issue and movement of resources.
- Hopefully, but not in all cases due to political constraints.
- Distribution can assist as far as survivability of assets. Preservation begins during the definition process and proceeds throughout the acquisition and the maturation process as systems are planned, designed, and evaluated.
- Also provides alot more.
- Dispersal implies survival.
- Distribution of assets provides the means for combat support. Preservation and restoration is another issue entirely.- Maintenance does that, but distribution is a necessary part of the entire process.

Question 21

- I can't evaluate because I don't understand what you mean by "integration".
- I'm not sure what is meant by integration.
- It should but does not achieve that goal.
- It definitely should help. Effective integration demands joint and combined plans and agreements, acquisition programs leading to common aerospace systems, standardized procedures and extensive exercises for both military and civilians in and out of allied governments.
- Also alot more - (weapons, systems, repair, etc.)
- Replace "integration" with "configuration control".
- Integration may not insure commonality. But it is a step in the right direction.
- In theory it does.

Question 22

- Without foreign approval or agreement, distribution doesn't occur.
- Absolutely! Look at our current activities, and the foreign constraints in the Arabian Gulf. Further, look at our problems distributing materials supporting Israel in its 1973 war when some European countries would not permit Israeli-support aircraft to land or service or overfly. Look at the problems of tactics when we raided Libya but the FB-111 aircraft couldn't overfly Spain. Think, too, of the problems we originally had sitting the medium range nuclear missiles in Germany and England under heavy civilian protests.
- Agreements between countries are vitally important.
- HNS, prepositioning, etc. look at the pulling out of Spain's impact.
- Yes, most definitely for support in the overseas theater.
- Distribution abroad is impacted.
- It's national policy to rely on our allies for defense on a joint basis.
- Amount of host nation support, access rights, permission to overfly, etc.

- Foreign relations impacts the amount of support and cooperation we can expect on foreign soil.

Question 23

- One of the biggest problems.
- I don't understand the statement so . . .
- Separation is required for protection but increases transportation and security problems.
- Does the statement pertain to foreign relations or U.S. joint procedures?
- It would be dumb to put all your assets in one space.
- Impacts on deployment/employment of forces.
- Must balance distribution impact with survivability and location to other parts of the U.S. fighting force.
- But it also improves survivability
- Maybe - but may be necessary for turn around times and to ensure survivability of assets.

Question 24

- Items could be destroyed before they can be issued. Forward areas are too vulnerable for putting items of this nature.
- I agree. Common supplies should be readily available without hassle from whichever service is responsible for providing them. In the combat area, this is even more important. Supplies should meet needs immediately under correct and adequate combat support.
- Too much is lost, if forward area is lost. Smaller dispersed sites can provide the same benefits.
- Theater commander's job to take care of this.
- Not necessarily. You increase your vulnerability by putting your eggs in one basket.
- Central repair and mutual support are good concepts, but centralized assets assumes dedicated transportation and near real time distribution. Not to mention how lucrative a target such supply points would make.
- How far forward is the question? You must protect the assets.
- Need to consider survivability impacts of those items/storage/locations. Need to define common supply items.
- Must balance distribution impact with survivability and location to other parts of the U.S. fighting force.
- Depends on the circumstances - if the area is secure yes, if not, no.
- However centralization must be weighed with vulnerability.
- They should be dispersed among units.
- Might speed up the pipeline, but also makes it easier to be destroyed when centrally located.
- Sometimes, sometimes not. How safe is the forward location?

Question 25

- Especially for sensitive items like avionics LRV's and test equipment requiring calibration.
- Containerization efforts certainly should be improved. Containers can be invaluable in combat areas because they offer supplies and secure storage at one and the same time. Specially constructed vehicles would be nice, but that's one more technological add-on which would increase support needs and supply problems. If the vehicles were proven reliable, capable of use in all terrains/climates, and usable without detailed training of operators, so much to the good. However, containers must be usable and movable, without such vehicles or they would become anchors for the forces of combat.
- Don't need more specialized equipment requirements. New items developed must be compatible with existing capability (equipment) both in CONUS and overseas.
- Big problem.
- Containerized ammo is a hurter in CONUS, ability to unstuff a major planning factor overseas in theater, as is port facilities to offload ships.
- Containerization should be improved but why special vehicles? Need to make much broader use of containization.
- Anything we can do to help transportation is a good idea.
- We should make process simple. Specialized equipment negates simplicity.
- Packing is a part of the distribution process (issuance). Limits mobility of forces.
- Must rely on common type vehicles - also we rely on host nation support in some theaters for most land transport.
- Containerization is great, but specially constructed vehicles cause limitations.
- "Specially" breeds uniqueness.
- Shipping can't handle most military cargo now. You want more equipment to grapple with?
- Not familiar with problems in the containerization area.
- Great idea but not if only the special vehicles can move containers. In combat those vehicles may not be available.

Question 26

- Only in the event the material is prepositioned at the using location. A significant portion of prepositioned material must be malpositioned due to storage limitations at using locations. Increases transportation and planning problems.
- Of course this is true if the stuff is where it is needed. But, prepositioning is only good if the site is appropriate to the need. Now, that's a truism, I guess, but my point is that prepositioning, by and of itself, is not necessarily good. It is good only when in the correct location with the correct supplies/equipment. The problem - and it is a major problem in view of foreign country limitations - is to decide where to preposition how much of what.

- If prepositioned in proper location and material is what is required.
- Prepositioning ensures availability when needed.
- Good concept, but not immediate if can't get close enough to need due to politics/State Department inabilities.
- Yes, but malpositioning can be deadly.
- Yes, but it's costly.
- Depending upon where it is prepositioned.
- Still need to redistribute material when the war breaks out. Prepositioning can be misleading, does not necessarily equate with immediately available.
- Sometimes - central prepositioning in theater helps strategic transport problems. However, in theater transport could still be a problem - in some cases worse than if it was transported directly from CONUS to using base if, in theater assets are not available.
- If (1) we get to it before the enemy, (2) it is properly stored/maintained, (3) it is where we need it.
- But must be weighed with cost. Many SAC units deploy to different theaters; therefore, increasing the cost of prepositioning.
- Not immediate, but much improved.
- Speeds up pipeline.
- If it is not captured/destroyed first.
- This should be true, but not everything is at the point of intended use.

Question 27

- Without it, they will have to spend as much time trying to plan and coordinate the arrival of essential items.
- Of course it does! But, that's part of the price of readiness and future combat support. If we can't afford to support the troops with other assets, we shouldn't attempt prepositioning. It is not wise to preposition only part of the planned supplies/equipment because if combat becomes necessary, troops must be able to count on availability according to plan.
- Availability is limited, but if it is prepositioned, it is dedicated to a specific objective and would not be able to be used even if it weren't prepositioned.
- Exception is use of prepositioned equipment in exercises, there and ready to be exercised.
- There is a trade off.
- Yes, particularly if items are designated for wartime use only.
- You must balance preposition assets with total assets available. Prepositioning speeds deployment.
- One of the consequences of prepositioning of forces/equipment/supplies.
- True but that is the whole idea of WRM (War Readiness Material) so you do have it when needed.
- True, but effectiveness in combat is more important than peacetime efficiency.
- True to some extent, but they can be repositioned if necessary.

- So? That's not always bad or good.

Question 28

- Absolutely! So, too, must theater housing, messing, and medical standards be incorporated to direct and control certain construction requirements.
- Should be considered if not already available.
- Or work around it. Harvest base assets.
- Facilities planning is usually the "longest pole" in the tent!

Question 29

- Either that or inflate budget needs.
- I believe so, but I am not sure if it is distrust of the distribution system so much as it may be distrust of the local logistics process.
- Problem since start of time - almost!
- Caused by uncertainty of supply inventory and time of receipt.
- Distrust of distribution process is usually warranted.
- The potential is there.
- This does occur - probably more so on the frontline.
- I'm not sure, but wouldn't be surprised.
- Generally true, but is command specific.

Question 30

- In most cases.
- I really don't know what you mean here. What is "restoring"? Do you mean "return to service after use/damage"? Or, do you mean "replacement of losses"? Or, do you mean "reconstitution of units after combat"? I assumed you meant the first definition above; and therefore, agree lightly.
- Can also cause greater loss if prepositioned in a vulnerable location.
- As long as not used as the first equipment. Believe much is not repair/resupply, but "initial issue" for use in war.
- Doesn't aid in restoring, it aids in deployment.
- Restoring depends on where the restorer is located.
- Has nothing to do with restoration. Reduces equipment deployed with incoming units.
- I would not think that prepositioning has that great an impact on restoration of equipment.
- The two are not necessarily related.

Question 31

- Without it there will probably be nothing but chaos.
- Yes, I think. But, you really need to put some time and effort into defining minimum essential information needs for and from combat area units. We must not burden combat area units with creating all the information modern technology permits and modern bureaucracy demands. We must avoid repetition of Vietnam in which combat area actions and decisions were far too often made in Washington. The same

caution applies to decisions made anywhere outside the combat unit in a combat zone.

- Absolutely critical for command and control.
- Info needs renewal to remain current.
- From a logistics perspective - yes. However, an airbase "closed" to use of automated info systems may still operate for a time without these systems.
- Lines of communication and ability to process data is vital.
- Updating of data base is necessary to ensure accurate information is being used by maintenance personnel.
- Define "information functions" please. Communications only, voice only, what?

Question 32

- In some cases yes, in others no. Since some damage will inevitably occur behind the forward battle line.
- Again, if by "restoration" you mean some form of maintenance, I disagree. The only maintenance which ought to be performed in the combat area is that which cannot be avoided if the unit is to retain combat capability. When the early fighting in the Korean War caused massive United Nations retreats, the combat area situation became so fluid that the combat maintenance elements could not position their equipment nor perform full prescribed maintenance. This led to the creation of rear echelon maintenance units to support combat units. In the USAF, these REMCOs (Rear Echelon Maintenance Cooperatives) became functional in Japan and served the combat units well. I would expect similar conditions and situations in another war; and therefore, disagree with your statement.
- Backup capability is generally in the rear areas.
- Some of it will be.
- Not in all cases.
- Restoration ensures personnel, vehicles, shelters, spare parts, support equipment, pavements, utilities are all made available. Survivability is an important consideration.
- For facilities - yes, for minor repair - yes, for major Aircraft rehab - no.
- Will vary with circumstances.
- Today that may be true. In 20 years we won't be able to because of complexity of aircraft, etc.
- Out of necessity.
- I would assume that is true, although I have no experience in that area.
- Depends on plan/events.

Question 33

- Certainly! We have gone to great lengths to increase complexity in our equipment. That was, of course, not the goal of technological advance but was a result nevertheless. I don't know how an F-15 unit, for example, can be mobile yet maintain its extensive mass of mandatory and complex test and maintenance equipment.

- Repair is generally done in CONUS, with total replacement being the most general repair on front line damage.
- Possible for some types of equipment, but that's what war planning is for.
- The equipment may be complex but repair by LRU/SRLL replacement modules simplifies process.
- Some are/repair of composite structures.
- Particularly avionics - no longer are technicians trained to troubleshoot and repair without AIS.
- Today that may be true. In 20 years we won't be able to because of complexity of aircraft, etc.
- Many pieces of test equipment are too fragile for normal frontline environment. They will disintegrate in combat.
- The emphasis today in R&M is on ease of maintenance; most repair jobs during conflict should be remove and replace.
- Sometimes yes, sometimes no. Give me an example.

Question 34

- This will not be as critical in the short term as in the long term. When on-hand assets are depleted, repairable become essential for sustainment purposes.
- Yes, either delivered to the proper level of repair or abandoned. The combat units, or combat support units, must not be burdened with masses of nonfunctioning equipment/parts.
- Material must be rapidly returned for repair because total number of items is limited and replacements generally come from repair pipeline.
- Depending upon equipment, yes.
- And the right priority assigned to repair.
- If the equipment is needed.
- To ensure availability, but transport shouldn't be sacrificed solely to meet this objective. Sometimes retrograde missions have to be sacrificed for other supply missions during the "heat of the campaign".
- We don't have/buy backup equipment.
- Because there isn't much to go around.
- If quick turn around is important, then it is essential to get the equipment in for repair ASAP.
- Usually a good idea but is N/A if there is no plan to repair the item during the conflict.. ie. throw it away or repair later.

Question 35

- Dispersal may cause delays in getting things restored; however, the advantages gained in survivability more than offset this deficiency.
- To the I-level, capability should exist in combat service support units in mobile (near front line) facilities.
- Depends on stage of conflict and assumes no planning for alternative restoration.
- No. Depends on self-supporting.
- Dispersal is a concept that provides more operational flexibility than we have today. R&M 2000 UNSIC insertion and other programs should help in the future.

- To a large extent this is true.
- Survivability of assets must be factored in. Dispersal spreads out available assets, but also makes them more survivable.
- Again it depends on circumstances, they are more survivable yet pooling of assets like AIS allows you to use one set to trouble shoot the other or shift workload between sets.
- Turn around time and pipeline spare requirements both increase with distance.
- Again, depends on items/facilities, equipment, skills available. This statement, by itself, is too vague.

Question 36

- It will be a "come as you are war" with little time to train or prepare equipment. However, these areas of training and equipment preparedness will still play a vital role.
- Certainly, development of men and equipment will proceed during all peacetime activities to some degree. Whether this fortuitous situation will result in "better prepared men and equipment" depends on the planning for the unit and its forms of exercise. Merely completing certain jobs won't do it. We don't need "experts" who have done simple repair jobs hundreds of times but who have not acquired variety of experience.
- Will or Should?
- Today's development indicates lack of preparedness.
- Objective, not reality.
- If we plan correctly, but budget restraints may severely affect preparation.
- That's what we're counting on.
- Meaning unclear ie, immediately before the conflict, during buildup, or in long-term training effort?
- Define development (Training, RD, TeFc)? When the balloon goes up, we will have to rely on the fielded forces.
- Maybe, but doubtful.
- Generally true, but some items will be developed as needed ie, bomb sites in WWII, H-bomb, etc.
- Should!
- That is our goal - to be prepared in the event something does start.
- What kind of development - physical, mental, emotional?

Question 37

- Without resorting to actual combat situations, simulation is our only method of preparing currently despite the short falls.
- Absolutely! We are not willing, it seems, to expose our combat support people to real hazards in noncombat times. As earlier mentioned, the exercises and deployments are very often "games" for optimum points in some evaluation scheme rather than for realistic simulated combat experience.

- Simulations are used to make "too hard" or "too expensive" problems go away.
- Simulations are useful but can't totally incorporate all factors especially the "unknown-unknowns"
- Don't believe we can grasp realities of conflict.
- Never fight the real enemy until you fight him for real. However, it does help to approach it.
- The realities of actual conflict would be very difficult to simulate.

Question 38

- Certainly! And vice versa, as well. Further, you should not exclude the strategist from this mutual learning condition.
- To transport.
- And vice versa.
- And vice versa - must communicate.
- And vice versa - tacticians should be aware of the capabilities of the logisticians.
- I would agree if this is changed to needs or desires.
- And vice versa!
- So we can watch them closely.
- It might be helpful, but I don't believe it is essential.

Question 39

- I would hope so, but I know very few operations commanders who have received much formal education in logistics. Tactics, maybe, but not logistics. The coverage in the senior PME programs is limited at best and most of the operational types seldom attend a support school in which logistics is taught.
- The operational commander will rely on past experience, which may or may not involve formal training in log or tactics.
- He'll rely upon log staff for development.
- Will have some impact - not necessarily strong - experiences and OJT more important.
- Yes, particularly with regard to joint operations.
- He needs background - things happen fast so can't OJT.
- Educate, but practical application will be the real educator.
- The operational commander's personal education and experiences will influence the overall plan.

Question 40

- I would expect this to happen. It has in the past. The flurry of combat, particularly if the situation is fluid and holding the ground is questionable, makes for decentralized activity. It is at this time the true military leaders arise. The unit either becomes demonstrably effective or it falters and becomes a hazard. The secret is whether or not the junior officers and NCOs have been conditioned to lead or follow. But, either way, the unit functions pretty much as a decentralized unit - a successful unit or a failure.

The amazing thing is that the units in these conditions seem to do well even though peacetime military activities certainly do not prepare them for the condition. Peacetime centralization is stifling and restraining. It should be avoided and units should be given their opportunities to learn to function decentralized in preparation for combat.

- Airfield at 300 miles away will remain in use, even if capture airfield in theater. Resupply by follow-up shipping will be decentralized.

- Yes, almost assuredly - for better effectiveness, although centralized control of resources (away from conflict area) is necessary also.

- Disbursement is hard to happen if forces are under seige. Facilitates repair/support of fielded system.

- Based on the scenario provided transportation, maintenance and supply will be somewhat decentralized.

- Depends on the commander.

Question 41

- Absolutely! In combat, or in a fluid combat zone, there is little time for delay in decision making. Decisions will be made now by the senior person present and he/she will succeed or fail based on the decisions made. That's the way of combat. We ought to prepare for it but we don't. We should now be emphasising decentralized decisionmaking (in earnest and honest efforts rather than in wordly pronouncements of short-term project goals) in anticipation of the problems of combat zone operation.

- Depends on situation and resources involved.

- You don't have time to staff.

- Hopefully, your combat support plan has been prepared to achieve the best combat operations possible, but you still have to make reactive decisions throughout the campaign.

- To a large extent this is true although outside communication to higher "headquarters" is also possible.

Question 42

- No, I don't think plans will simplify nor will combat support concepts. Planners tend to get wrapped up in their plans. The plans don't seem complex to them nor do the concepts employed. But then, they don't have to implement and operate the complex actions directed by planning.

Simplicity is difficult to attain. It takes time and experience and guts. Most of the time, the planners have little of these and complexity takes the place of common sense. Usually, too, unit plans are rarely exercised in their entirety so the complexity is not fully known until too late. Too bad! We really do need help!

- Oversimplified and unrealistic.

- Because seldom exercise full Combat Support plans over extended period, so tough issues are simplified (or not recognized).

- Complex during planning - simplify in execution.

- Not necessarily, but that ought to be the goal.

- Not in this scenario.
- Not only development, but hopefully employment.
- Maybe simplified, but should allow for decentralized operations in the field.
- They will be complex during plan development. But during execution, they will be changed to be more simplified. It shouldn't be this way, but it is.
- I think based on the scenario provided the combat support concepts could become rather complex and difficult to follow.

Question 43

- Most certainly! Again, we should be working this in peacetime rather than waiting for the mass confusion of war to try to solve the problems. In WWII we were fortunate because we had the efforts of the Lend-lease Act to help us for more than a year before Pearl Harbor. Part of that act required that all military equipment destined for the Allies had to be manufactured with U.S. specifications. The Allies didn't like that at first but when we entered the war, we could immediately exchange equipment and know it would match. This was also true with weapons and ammunition calibers. It certainly improved supply support and cross servicing with our Allies. We never did really achieve commonality of combat support concepts with our Allies, but we survived because we had so much material. In Korea and Vietnam our concepts generally controlled and our Allies had to sort of merge to fit us. Can we count on that in the future? Should we count on Allies giving in to us in the matter of combat support concepts?
- Depends, but looks more like commander would request necessary supplies from allies, if allied forces used would need integration.
- Hard nut to crack.
- In planning due to politics - execution will tend to develop own support.
- Proven time and again!
- The better, the more effective the team effort.
- Depends on many factors.
- Integrating capabilities (avoiding duplication of efforts) could very well impact the final outcome of the conflict.

Question 44

- I can't evaluate because I don't know what you mean by "integration".
- Information, facilities, yes - material depending on integration of equipment. People - no.
- Yes, but getting it done is another matter.
- Strongly agree, the better the more effective.
- The more integrated the entire effort is, the better the probability of success.

Question 45

- Don't think it requires any less.

- I can't evaluate because I don't know what you mean by "integration".
- About the same.
- The operators may not agree with me.
- Integration with what?
- We stress tactical integration but usually forget logistics.
- Strongly agree. Tactics and strategy with the allies.
- Not enough information.
- All the efforts need to be integrated, although it may be readily obvious when logistics is not integrated.

Question 46

- I think I agree with you but am not sure what you mean by "removal". If you mean removal from the combat zone to a rear echelon for maintenance, then I would agree. But, I would also suggest we probably should not insist on masses of paperwork to record cannibalization in the combat zone. Let the inspectors in the rear determine what was removed or what is missing from a major item or an end item.
- Also service policy on cannibalization.
- Yes, but cannibalization ought to be a last resort after other sources of supply have been investigated.
- Strongly agree. Limited repair function in the battlefield.
- Restoration requires understanding of cannibalization. Removal does not.
- Dumb question.
- We would want to get the most use out of the equipment before removing it completely from use.
- Not sure. Depends on logistics/maintenance concepts employed. You may decide to throw everything overboard.

Question 47

- Only to the extent that these men and equipment could be placed on retrograde transportation modes.
- Well, again I must say I am not sure of your meaning. If "initial distribution activities" means transportation (any means), I would agree at the "5" level. If the term means something else, I would have to respond with a "4". Getting rid of unneeded men/equipment is vital for the combat support functions. They should not be burdened with any excessive support needs. Everything should be directed to the combat unit(s) supporting the strategic goals. Again, I would suggest we should never again have a situation similar to Vietnam where support people so greatly exceeded combat people.
- To medical and intermediate maintenance facilities.
- Retrograde activities should not become a major problem.
- Yes, depending on the situation.
- Repair facilities and medical support will depend a great deal on the cooperation and commonality of forces between allies and MAB.

- Use return flights for removal when material is transported in.
- Anything "might", leaving them in theater, "might" you relocate them, etc.
- Unless you're talking about wounded, this probably won't happen.
- Not initially, but later on it would become a significant effort.

Question 48

- Should be the criteria but I am not sure that we have enough guts to make those decisions. Sounds harsh, but I think we've created a monster with our "quality of life" emphasis over the years. I'm afraid many such decisions will be made on the basis of "nice to have" rather than combat worth.
- Should be but often isn't considered.
- Requirements will be primary factor.
- If badly damaged, equipment will probably be left in place vice removal until theater is mature.
- Determining factor will be the amount of space available to bring back men/material.
- Except, you don't want all your reserves up front.
- Combat worth of medical assistance has a high morale value which impacts combat worth.
- Many more factors -(eg. available transportation, can't be restored for reuse, doesn't impede the war effort, etc.)
- A vehicle or other asset may have no combat worth but if it is not in the way, waste no resource removing it, just ignore it.
- The cost of removal may be greater than the cost of leaving it behind.

Question 49

- Probably. Again, history would show that peacetime disposal methods were not observed in combat areas. More to the point was abandonment when an item was considered by the combat troop either unnecessary or of no value to his immediate survival. Look at the records of WWI, WWII, Korea, and Vietnam. Why should we expect any different actions by today's soldiers, marines, sailors, or airmen? Accordingly, we should prepare today for that eventuality and certainly should not train our supply people to expect or to demand peacetime paperwork and procedures in an active combat zone.
- Probably will but shouldn't.
- They will be expanded.
- No. You need to train like you will fight.
- To a certain extent, yes. For example if an aircraft crash lands, it will probably be bulldozed off the runway and useable parts will be removed.
- Body bags will be used. Still combat equipment disposal will not be so clear cut.

- Some will, some will not. Also depends on conflict intensity and duration.
- They have in other wars.
- Methods don't necessarily disappear, they are just shortcut with work arounds.

Question 50

- I can't respond to this question because I think the answer would be dependent upon many factors --- such as, possessed equipment, combat needs, needs of the indigenous peoples in the zone, and so forth. Generally speaking, I'd say the need for "constant communication" reference disposal of assets would not occur in a combat zone so I would have to disagree.
- "Constant" is probably too limiting of a word.
- Not enough information.
- Many items we don't need may be usable to allies as their equipment is damaged.
- Probably not, although to do so would make sense.

Question 51

- Probably true because the U.S. normally does not begin a war. Therefore, we could expect to initially be on the receiving end of an assault. Thus, the preservation of men and equipment would be of prime concern to enable later fighting and support.
- Only when we start running out do we start worrying about saving.
- Probably more concentration on people.
- Not unless you think you can win by defense! Primarily you've got to support fighting operations.
- Gaining the offensive - need bullets, gas, parts, etc.
- Initial emphasis is more to get the right things (men and equipment) to the right place at the right time.

Question 52

- Also probably true. However, we must bear in mind that a war begun by another nation would mean that nation's forces would be immediately prepared to assault. If we dissipate our forces too greatly through separation into smaller units, we might no longer have a resistive defensive capability or an attack capability. Too much separation would increase sentry and guard needs for men and equipment. Thus, separation into smaller units at first might be nonfunctional. But, with common sense, I lightly agree with the probability of separation into smaller units.
- Depends on the self defense capability of the unit.
- It could certainly help, although support problems would be introduced.
- Not enough information (threat, geographic location, topography, mission, etc.).
- Probably but need to know what/who is where so you can control/use them.
- Dispersal - fewer targets.

powerful are they? How much equipment, etc. do I have to spread around.

Question 53

- Dispersal of assets will probably provide more benefits until construction of preservation facilities can be completed.
- Keeping in mind your scenario, I would agree. The host provided facilities are bare minimum. If the base is not under active attack/assault, construction might be accomplished. But since I still don't know what you mean by "preservation", I can't quite get my arms around this question.
- Only if you are including digging a foxhole as a construction capability.
- Not if preplanning for other approaches has taken place.
- Portability of hardened facilities.
- Agree but also later - when need to recover runways & essential facilities to continue to repel attacks/get a/c off ground.
- Initially it will rely on reconstruction capability.
- Shelters and storage facilities are a critical factor in survivability.
- Maybe.

Question 54

- I don't understand what you mean by "special systems and platforms" so I can't respond.
- Can, but universally so.
- Will or May?
- Define better. Special systems and platforms have some benefit in survivability aspects, but may lose some in commonality and thus cannibalization becomes harder.
- Could - but could decrease it if generic off-the-shelf is not used. Loss of a specialized system is tough/impossible to replace quickly.
- Night vision goggles; sensor systems, missile defense, etc.
- It might, if they are trained properly.
- I'm not familiar with this aspect.
- Give me an example of "special systems" and "platforms". What are they designed to do?

Question 55

- If by "protection" you mean armed guards, combat forces, and the like, I would agree strongly. But, if "protection" means something else, I would not know without definition.
- Might not be able to have a thorough understanding of the threat, but do the best you can and learn from experience after war started.
- This would appear to be essential to know what you are providing protection from.

Question 56

- Don't know until systems are proven or tested under actual combat conditions. Normally the more current the system, the more protection it provides.
- Again, I am stymied by lack of definition of "protection". I can't really respond although I am tempted to strongly agree and have so marked the response. But, I may be doing that on the basis of what I mean by protection rather than what you may have in mind.
- No, current weapon systems provide better than older ones.
- Hard to respond to this question. Our weapons are becoming more complex, but hopefully more realiable and maintainable.
- Newer weapon systems are being built with survivability (internal protection) in mind.

Question 57

- I still am forced to use a "4" for a response because I don't know your definition for "protection". Sorry!
- Possibility certainty exists, although you need the right equipment not just concepts.
- Not if proper planning was done.
- Definitely will impact.
- Not enough information.
- A plan for survival is essential.

Question 58

- More critical will be the ability to provide dispersal and passive survivability techniques.
- I feel guilty saying I need a definition, but I do. In this question, I assume protection means physical protection from the enemy, weather, insects, whatever. If that is the correct definition, I agree strongly.
- Not relative to weapons systems.
- Transportation.
- Doesn't have to if requirements are well thought out in advance.
- Don't believe extensive.
- Threat dependent/survivability dependent. Allied support at remote site may require portable shelters and supply line.
- Not enough information.
- Will require these, but will also require better use of what is in place and a change in mind-set.
- Basic supplies per man per day is rather high and the protection of these resources is expensive.

Question 59

- I am confused by your phrase "understanding of the expected conflict area" and cannot agree or disagree.
- Should be covered in Combat Support Plan.
- For housing, food, medical, etc.
- Would be helpful, but not essential.

Question 60

- I am confused by your phrase "understanding of the expected conflict area" and cannot agree or disagree.
- Should be covered in Combat Support Plan.
- More critical to know what resources are available (support, electrical, etc.).

Question 61

- I am confused by your phrase "understanding of the expected conflict area" and cannot agree or disagree.
- Should be covered in combat support plan.
- Critical requirement as preparing/constructing facilities can be very time consuming and expensive.

Question 62

- I am confused by your phrase "understanding of the expected conflict area" and cannot agree or disagree.
- Sustainability factor.
- Should be covered in combat support plan.
- Very critical to know availability and access to transportation resources (waterways, railways, etc.).

Question 63

- I believe this should be true but, again, must caution that we not overburden the combat support operation with extensive people/equipment.
- Should be, but not sure it is.
- Patton - "You make the other "....." die for his country".
- Impacts on sustainability during the campaign.
- Many other factors. It is a major consideration - if this were true, we'd dig deep holes, put resources in them and never come out to fight.
- Agree but purpose (primary) is to provide combat capability not preserve.
- The bottom line is without survival of men and equipment, there is nothing left to support.
- Not necessarily in all cases. People, as equipment, can be sacrificed.

Question 64

- If there is adequate 3C's between the tactician and the logistician, then such a grocery list should be possible and practical. It certainly would be a help to have such knowledge before the effort begins and not arrive on-site needing to learn at the last minute. The combat support requirements, obviously, should be based on knowledge of the tactical forces probable actions and needs for support. Communication, coordination, and cooperation ahead of time and on-site is essential for success. Thus a grocery list ought to be not only possible but determined necessary.
- Don't understand.
- Support reacts to operational requirements not vice versa.
- Believe it's the opposite, tacticians drive combat support.

- Combat support requirements may help set the capability bounds on the tacticians ability to fight the war.
- The tacticians understanding of the requirements become the requirements passed on to the logistics people to meet operational demands.
- Don't understand the question.
- It should be tactics first/logistics second.

Question 65

- Absolutely! There is no extensive military support industrial base left in the U.S. now, as I have mentioned. Then, too, if we consider the lead time for modern technology weaponry (up to 12 to 20 years!), we have yet another problem for acquisition. If we insist on such, we will have to fight the next war with weaponry types available at the start unless we plan for a 20 year war! What a horizon to look at!!! If the host country in your scenario has such an industrial base, then perhaps my response could be different. I do believe now, in event of a war, given we do nothing new in the interim; we would have to rely on other countries for industrial support and hope and pray they remained our allies and friends. Too bad! Imagine a country as great as the U.S. falling to an enemy because we chose the easy way to live and did less than required to protect our wonderful way of life!
- Industrial base will respond; however, complexity of weapons may slow response times.
- Problem getting output with job fluidity & "the system" competing for the same resources.
- Probably, especially as the size of the conflict increases.
- Hard to make this judgment without more knowledge of the conflict.
- Industrial base will be responsive - we must understand the length of time "responsive" is.
- Money to preposition, transport, etc., is more pressing. For some items; however, the answer may be "6" or "7".
- For this scenario it will be the lack of local sources for procurement of needed food/fuel/etc.
- The industrial base is pretty much responsive to our demands, although the price is not always right.
- Maybe, maybe not.

Question 66

- Yes, both politics and economics might limit acquisition functions in event of conflict. Our weapons of war have become so terribly expensive there is considerable doubt we could afford an expanded war similiar to WWII. In fact, the citizens might strongly object to another long localized war like Vietnam as the cost of warfare continues to rise, taxing them to extremes. Have we given these thoughts consideration? Have we no alternatives?
- Political factors may limit requisition process.
- Assuming a declared war, see no political or economic problems.

- Might.
 - Witness Vietnam.
 - Always true.
 - Believe the process is flexible to support effort.
 - Vague.
 - I feel this is a definite not a might.
 - We are peacetime oriented.
 - Any factor (strike, earthquake) might limit the ability to
-

Question 67

- Many of the acquisition programs planned are 3-4 years away if production decision was made now.
- Yes, see my comments above for questions 64 and 65. Not only will complexity hamper acquisition, but combat support of those weapons systems in the combat zone will be hampered. Can we always count on available sophisticated test and evaluation equipment? Have we reached the point where we can no longer support equipment without massive support equipment availability? Should we allow this to continue? We should be concentrating on producing complex equipment which is simple to maintain with only manpower and small tools. If we don't make that our target, we will never leave the ever increasing complexity coil. We will soon be so complex, we cannot move!
- To a greater degree than ever before.
- Depends on how well we do our peacetime planning and preparation.
- We'll get in on contract - problem will be on industrial base - limited resources.
- Do the best it can.
- Not enough information (combat intensity, availability of local material, ROE regarding seizure of materials locally, combat location, etc.).
- The acquisition requirements may be greater, but supporting 1,000 moving parts or 10,000 moving parts is basically the same process (just more orders required).
- Maybe.
- I am not sure the problem is functions; but rather, the ability to get items manufactured in a timely manner.

Question 68

- Only one source not a cover all. Need to review allied plans as well as U.S. and DOD guidance documents like Defense guidance, WMP, etc.
- Probably so since the combat support plans should be based on the attainment and sustainment of the desired force capabilities. If they are, then an study of them would reveal capabilities.
- Capabilities will be specific to that plan.
- MPS and NTPS are known. Tacticians already know what is possible until resupply arrives.
- By including "allied", I have to say we don't do that well although we would need to.

- We should know this before the conflict. Why else do we have combined exercises.
- Readiness and sustainment of the fighting force.
- Combat support is only one part of overall "capability"
- Many aspects will not be in plan.
- Some allied capabilities are classified from us.
- True, but outside research is also necessary.
- Hopefully.

Question 69

- I'm sorry, but once again I have to say I am not sure what you mean. If I go only on what is written, I would have to disagree; because I don't think the nature of the conflict will result from our logistics elements. Logistics elements (distribution, etc) are parts of support but not necessarily parts of combat. A smart strategist and a capable tactician would perhaps concentrate on removing those element capabilities in order to stop or hamper combat capability. But, the nature of the conflict would not be changed by, or be composed of, the elements of logistics.
- Question Mark.
- No, the nature of conflict depends on the enemy threat/actions and our capability to respond.
- Nature of the conflict is determined by the enemy's intentions and the amount of resources he's willing to spend to achieve his political goals.
- Not clear.
- Combat support doctrine refers to these as processes.
- Answer is "5" if the word "logistics" is inserted as shown
- still there are other factors - see question 10.
- It seems there are other environmental influences.
- Don't really understand this.

Question 70

- Control over the Combat support plan is no guarantor of assuring anything.
- Control by whom? I can't respond based on what you provide.
- Tactics do the goals, Combat Support plans reinforces or supports tactics. Combat Support does not achieve strategic goals, tacticians do.
- Combat support not plan.
- Yes, but the plan isn't everything; planning is - misquote of Ike.
- What about plan execution?
- Not necessarily true.
- Too many other factors.
- Lousy question.
- Control is at least a contributing factor to success.

Question 71

- I agree. This would be particularly true of assets in short supply. But, excesses can also constrict and that condition must be controlled as well.

- Limiting factor.
- For the most part, but rear support will consume resources as well.
- Impacts readiness and sustainability.
- Although ops is not the only consumer.
- Concepts don't consume.
- We can only access what is available and at our disposal.

Question 72

- Don't believe the operational commander's management style can be equated to the effectiveness of the plan, but to the effectiveness of the commander as a leader.
- I agree, but I wish you had said the "leadership style". We don't need management in combat! We need leadership! Management, of a sort, is required of the logistics forces controlling assets, but leadership is required for dealing with the human assets. Assuredly, the way the operational commander views his support and his assets will effect the effectiveness and efficiency of that support. Operational personnel should be educated about this effect, but I doubt they are. Yet, most will rise to the occasion and do a damned fine job!
- Styles vary and many types are effective.
- The plan is a guide only. What's more important is the effectiveness of combat support resources. We never fight a war as planned. Adhering rigidly to a plan may lead to failure regardless how effective it is.
- Responsiveness as well as combat operations.
- If the "ops cmdr" is the DO. If it means the overall cmdr (like a wing CC) answer's "7".
- The operational commander's management style will impact the overall combat support plan.

Question 73

- Certainly! But, again, I think leadership style, rather than management style, would be more pertinent and accurate. If that commander allows decentralization of decision making, and permits his key people to really run their units in keeping with plans and needs; he will be successful and respected, I believe. So, yes, I think his style of leadership will affect the mission success.
- But to a lesser degree than the effect on combat support plan.
- Styles vary and many types are effective.
- Something can be done despite - but very difficult.
- Important consideration.
- If the "ops cmdr" is the DO. If it means the overall cmdr (like a wing CC) answer's "7".
- The management style affects implementation of the plan, which naturally affects the success.

Question 74

- I agree. There is no set of criteria by which such actions may be measured -- particularly in combat.

Fluidity, threat, peril, and adrenalin demand judgment calls continually. Can't be avoided!

- It is, but shouldn't be.
- Yes, but he'd better get the advice of the logistician!!!
- Combat support plan dependent.
- Depends on management style, skill of combat support deputy, etc.
- If the "ops cmdr" is the DO. If it means the overall cmdr (like a wing CC) answer's "7".
- Logistics planners.
- Yes, situational factors are best identified by one close to the situation.
- I don't see how the combat support plan could affect a specific mission.

Question 75

- I don't understand what you have said so I can't respond.
- Combat worth.
- Depends which aspect -- chaplin, MWR, personnel - vs - transportation, CE, SP, etc.

Question 76

- Which plan do you reference? When does a combat support plan create losses of men or equipment? I don't understand.
- Operational commanders call as to what is "acceptable" may be quite different from yours/mine.
- Tough one!.
- But you might want to give operational commanders other options to carry out plan while also showing their consequences.
- Although success of the operations plan may be evaluated (sic. even though with) intense asset losses.
- If the mission is done and there are heavy losses - answer is "2". Not sure what "acceptable" means.
- If the expected losses are not acceptable, it wouldn't make much sense to include it in the plan.

Question 77

- I would hope so, but not knowing his successes and failures; I couldn't say much about the role of his experience in accepting or declining the combat support plan. Too many variables are involved to answer honestly.
- His insight is incorporated, but expect he'll rely on combat support logisticians.
- Not major.
- Shades combat support.
- Personal experiences would provide incentive to support or not to support the plan based on past outcomes.

Question 78

- Yes, but so, too, would the tactical plan(s).
- It ought to!
- Depending on how closely they relate and how definitive they are.

Question 79

- I would think so; but would hope, fervently, that would not be the sole measure of acceptability.
- Operational commander isn't looking for easy, looking for detailed thought.
- Integration is important. The logistician and tactician should be a team effort.
- Again this is influenced by how definitive (specific) they are.
- These plans must be in tandem.

Question 80

- Don't see the relationship.
- I may be a maverick, but I don't see how the presence of portable computer equipment could or should be involved in acceptance of the combat support plan. If acceptance is dependent on such a basis, the plan is faulty! There can be absolutely no assurance of computer operation in a combat zone or combat area. No combat support or tactical plan should be so dependent!
- Yes, but such equipment may be hard to maintain in a wartime environment.
- Will help but should have a manual backup.
- Portable stand alone may be best security wise and feasibility wise for remote operations.
- Add survivable - answer is "6".
- Depends on the "acceptors" opinion of computers.
- Possibly - due to being able to look at the source data and maybe through simulation exercises.

Question 81

- If it's a system normally used in peacetime which personnel are familiar with and trained on.
- I am in a small minority which believes no combat support plan should be dependent on availability of computer equipment. The plan should be clear and effectively useful with out such capability. If, it is available, then let it be used; but let's not make the plan depend upon such gear.
- Will help, but should have a manual backup.
- Concur.
- Possibly - due to being able to look at the source data and maybe through simulation exercises.

Question 82

- I would hope so. However, I can't say that your statement is universally true. I have the feeling most operational commanders sort of expect to be able to call on logistics support for anything at any time, and expect it to be available immediately. That sounds harsh, but I am not convinced the operational officers have been taught the urgency of the 3C's and the need for understanding the factors of logistics such as lead time, budget, and so forth.

- No previous experience.
- If they don't, they'll be in trouble.
- No replacement for experience.
- Experienced operational commanders are hard to find these days.
- Past experience provides a comfort level based on previous outcomes.

Question 83

- No, I don't think they assume such. I think most of them are too intelligent to assume any such thing. At the same time, I don't believe many of them are sufficiently educated in logistics processes to permit their sound evaluation of a proposed plan.
- Operational commander assumes nothing. That's how he got the job. He'll peruse & ask some hard questions to verify they're complete.
- Not all commanders have this view. It's up to the logisticians to do the job right.
- No plan is complete and certainly not concise!!
- May be false assumption.
- Never been an operational commander. I don't think that a commander assumes anything though.
- They should never assume anything.
- They are probably never satisfied that they are as complete as necessary.

Question 84

- Don't believe operational commanders ever feel peacetime operations adequately prepares them for conflict.
- Negative! My earlier comments tell you my thoughts on this topic. Peacetime exercises are far from realistic and are really not very good measures of a unit's combat capability. Exercises really don't have honest threat, true pressure, life challenge, or realism in attacks or assaults. Have you ever heard of an exercise in which logistics assets were truly destroyed? Have you ever known of flight operations in exercises using aircraft in truly questionable condition? Do units usually conduct nighttime operations with combat vehicles over unknown terrain? And so forth. If there were time, we could continue this for some long period!
- Not realistic.
- Would like to, but money/amount of active assets restrict. Most MPS ships offloaded is two, so not even sure of port clearance.
- Should, but doesn't.
- Not to the extent they should be. Problem is money in peacetime and lack of realism in exercise.
- It certainly helps.
- Most aspects of logistics are simulated or assumed away.
- They should, but few are.
- That may not be the goal. But when in a peacetime environment, it is difficult to simulate real conflict.

Question 85

- Too many unknown variables in wartime to predict these effects accurately.
- I don't think the operational commander should consider strict control over logistics support plans to be his functional responsibility. Certainly, he should insist on knowledge and intelligence about the plan from the logisticians, but he should allow them to handle the plan once he has approved it. Further, he should recognize he cannot know everything at all times; and therefore, must permit the people on the spot to make changes and decisions about support - advising him when practical and keeping him basically informed.
- Control, with delegation.
- He ought to. Whether he does is another question.
- It certainly helps. But define strict control (Micro-management)? Combat support plans is only a plan, a guide, but it's a good starting point.
- The operational commander should have thorough understanding and knowledge of all possible outcomes.

Question 86

- Not as a rule. I know some who have done a damned fine job of cross training operational and logistics key personnel. But, they are the rare birds. Most commanders I have known, have not considered such activity as efficient. They are wrong, and were wrong, but won't admit that. Surely, if time and conditions permit, the tactical planners should operate in the logistics environment for some time, and vice versa. Such cross training can only be beneficial in the long run. But, again, I believe that to be the exception rather than the rule. Surveys of logistics people certainly have not in the past shown any such training to be common.
- Should as a goal, but not fully funded or manned to have this happen.
- Agree that this should happen, but generally does not happen.
- We need to do more of this.
- If he's smart. Not all commanders share this view.
- It certainly helps.
- Should.
- That may be the goal, but in practice it is doubtful that much cross training takes place.
- Great idea, but probably not done in practice.

Question 87

- You have me lost again. I don't have familiarity with "Battle Books" per se, so can't respond.
- Not familiar with term "Battle Books".
- Unfamiliar with term.
- Never been an operational commander. It certainly could help.

- Don't know.
- Not familiar with this aspect.
- Perhaps I don't understand the term "Battle Books".

Question 88

- I don't know what you mean by an "instruction" so can't respond. My experience tells me that all operational commanders insist upon at least a briefing on combat support/logistics support planning for their unit soon after assuming command. After that, though, I have found it exceptionally difficult to get them to provide the necessary time for detailed update briefings or instruction on the logistics planning or processes.
- NWP's, FM's, etc. are available.
- Yes, but generally they are neglected, out-of-date instructions.
- The plan itself.
- Unfamiliar with term.
- Never been an operational commander. Define "instruction". Again the CSP is a guide. When balloon goes up, the situation becomes the dynamic.
- New combat support plan regulations now on the street will help.
- Not familiar with this aspect.

Question 89

- I doubt they do with strength. Certainly, they give the idea lip service because they must in order to SYA. But, I can't recall ever experiencing a commander who followed up on such expressed requirements.
- Good operational commanders do, most don't.
- Becoming more true.
- Never been there. Should be encouraged and he should make this happen - to increase awareness of each others work.
- If so, it tends to be one way.
- The using commands try to keep involved from the inception of the program.
- They should, but I don't know that they actually do it.

Question 90

- Not true! A few may well be familiar but, in general, the body of logistics are not. It is not unusual to find that logistics people are not asked to attend tactical briefings, exercise operational evaluations, etc.
- Should.
- They better be, or they will bring operations to a halt.
- Should be. Whether they are, remains to be seen. They should do more then work with the OP plans. Work with the fighter planners.
- Although they should be, this is not necessarily the case.

Question 91

- Generally, I agree, they are able to do so. But, as stated, I have found it difficult to get the commander to

give the time needed for effective logistics briefings/instructions.

- Within Navy, this is becoming a reality.
- Should be able to. But I have limited knowledge as to logistics interface with tacticians and operational commanders. They should work closely together to ensure sustainment of effective combat operations.
- Many discussions take place between the logistics community and the users.

Question 92

- You have me lost again. I don't have familiarity with "Battle Books" per se, so can't respond.
- Not familiar with term "Battle Books".
- Good decision aid. But again a guide to assist the commander. No replacement for the live logistician interface and in a very dynamic situation as represented in the scenario.
- Don't know.
- Not familiar with this aspect.

Appendix J: Results of the Second Delphi Round

| | <u>Question Number</u> | | | | | | | | |
|---|------------------------|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| R | 1 | 6 | 6 | 5 | 3 | 3 | 5 | 5 | 4 |
| E | 2 | 6 | 3 | 5 | 2 | 7 | 5 | 5 | 2 |
| S | 3 | 6 | 5 | 4 | 6 | 4 | 5 | 4 | 4 |
| P | 4 | 7 | 6 | 5 | 5 | 4 | 5 | 6 | 3 |
| O | 5 | | | | | | | | |
| N | 6 | 7 | 2 | 1 | 5 | 2 | 1 | 1 | 4 |
| D | 7 | | | | | | | | 2 |
| E | 8 | | | | | | | | |
| N | 9 | 6 | 6 | 3 | 6 | 1 | 5 | 6 | 4 |
| T | 10 | 6 | 5 | 4 | 5 | 3 | 4 | 5 | 4 |
| S | 11 | 6 | 6 | 6 | 4 | 4 | 6 | 7 | 7 |
| | 12 | 6 | 6 | 4 | 3 | 4 | 5 | 6 | 5 |
| | 13 | 2 | 5 | 5 | 5 | 3 | 5 | 4 | 5 |
| | 14 | | | | | | | | 2 |
| | 15 | | | | | | | | |
| | 16 | 5 | 6 | 5 | 5 | 3 | 5 | 3 | 5 |
| | 17 | | | | | | | | 3 |
| | 18 | | | | | | | | |
| | 19 | 2 | 7 | 6 | 2 | 2 | 6 | 1 | 1 |
| | 20 | | | | | | | | 4 |
| | 21 | 6 | 6 | 5 | 5 | 5 | 5 | 6 | 5 |
| | 22 | 7 | 7 | 5 | 5 | 3 | 4 | 5 | 5 |
| | 23 | | | | | | | | 2 |
| | 24 | 6 | 5 | 3 | 3 | 3 | 3 | 5 | 5 |
| | 25 | 5 | 6 | 6 | 6 | 4 | 6 | 6 | 5 |
| | 26 | 6 | 6 | 2 | 2 | 5 | 5 | 5 | 5 |
| | 27 | 6 | 7 | 6 | 5 | 2 | 5 | 6 | 3 |
| | 28 | 6 | 2 | 3 | 2 | 7 | 5 | 7 | 7 |
| | 29 | 6 | 6 | 4 | 5 | 2 | 6 | 6 | 5 |
| | 30 | 4 | 3 | 5 | 4 | 3 | 4 | 6 | 5 |

| | <u>Question Number</u> | | | | | | | |
|----|------------------------|-----|-----|-----|-----|-----|-----|-----|
| | 10a | 10b | 10c | 10d | 10e | 10f | 10g | 10h |
| 1 | 6 | 6 | 6 | 6 | 5 | 5 | 6 | 5 |
| 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 4 | 6 | 5 | 4 | 4 | 5 | 4 | 5 | 4 |
| 5 | | | | | | | | |
| 6 | 6 | 5 | 5 | 3 | 6 | 5 | 6 | 3 |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | . | . | . | . | . | . | . | . |
| 10 | 5 | 4 | 5 | 5 | 5 | 4 | 6 | 4 |
| 11 | 7 | 5 | 4 | 4 | 5 | 7 | 7 | 7 |
| 12 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 4 |
| 13 | 7 | 4 | 5 | 5 | 4 | 5 | 5 | 5 |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 5 |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | 7 | 4 | 4 | 2 | 6 | 2 | 5 | 3 |
| 20 | | | | | | | | |
| 21 | 6 | 5 | 5 | 6 | 6 | 5 | 6 | 5 |
| 22 | 7 | 7 | 7 | 7 | 4 | 6 | 7 | 7 |
| 23 | | | | | | | | |
| 24 | 5 | 3 | 5 | 5 | 6 | 6 | 6 | 3 |
| 25 | 5 | 5 | 5 | 5 | 6 | 5 | 6 | 4 |
| 26 | 6 | 2 | 5 | 3 | 5 | 5 | 6 | 5 |
| 27 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 3 |
| 28 | 6 | 6 | 6 | 6 | 6 | 5 | 5 | 5 |
| 29 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 30 | 6 | 5 | 5 | 5 | 5 | 5 | 6 | 4 |

| | <u>Question Number</u> | | | | | | | | | | |
|-------------|------------------------|----|----|----|----|----|----|----|----|----|---|
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| RESPONDENTS | 1 | 5 | 6 | 2 | 2 | 5 | | 7 | 3 | 6 | 4 |
| | 2 | 5 | 3 | 1 | 1 | . | | 7 | 6 | 7 | 2 |
| | 3 | 5 | 6 | 3 | 4 | 5 | C | 3 | 5 | 5 | 4 |
| | 4 | 5 | 6 | 3 | 3 | 5 | O | 6 | 5 | 6 | 5 |
| | 5 | | | | | | N | | | | |
| | 6 | 1 | 6 | 1 | 4 | 2 | S | 3 | 7 | 7 | 3 |
| | 7 | | | | | | E | | | | |
| | 8 | | | | | | N | | | | |
| | 9 | 3 | . | 1 | 1 | 6 | S | 7 | 5 | 7 | . |
| | 10 | 4 | 5 | . | 2 | 4 | U | 7 | 5 | 7 | 4 |
| | 11 | 4 | 7 | 2 | 2 | 5 | S | 6 | 6 | 6 | 4 |
| | 12 | 5 | 6 | 3 | 3 | 4 | | 6 | 6 | 6 | 5 |
| | 13 | 6 | 6 | 4 | 3 | 5 | O | 5 | 5 | 6 | 4 |
| | 14 | | | | | | B | | | | |
| | 15 | | | | | | T | | | | |
| | 16 | 2 | 6 | 3 | 2 | 6 | A | 6 | 6 | 6 | 6 |
| | 17 | | | | | | I | | | | |
| | 18 | | | | | | N | | | | |
| | 19 | 4 | 6 | 3 | 2 | 4 | E | 6 | 4 | 6 | 5 |
| | 20 | | | | | | D | | | | |
| | 21 | 6 | 6 | 2 | 2 | 6 | | 6 | 6 | 5 | 5 |
| | 22 | 4 | 7 | 4 | 4 | 7 | R | 7 | 7 | 7 | 3 |
| | 23 | | | | | | O | | | | |
| | 24 | 5 | 5 | 2 | 2 | 5 | U | 6 | 5 | 6 | 4 |
| | 25 | 6 | 6 | 1 | 2 | 5 | N | 6 | 6 | 5 | 6 |
| | 26 | 4 | 6 | 3 | 3 | 5 | D | 6 | 6 | 6 | 5 |
| | 27 | 5 | 5 | 3 | 3 | 5 | | 6 | 6 | 6 | 5 |
| | 28 | 7 | 6 | 1 | 1 | 6 | O | 6 | 5 | 7 | 6 |
| | 29 | 5 | 6 | 2 | 2 | 6 | N | 3 | 6 | 7 | 4 |
| | 30 | 5 | 5 | 3 | 3 | 6 | E | 6 | 7 | 6 | 5 |

| | | <u>Question Number</u> | | | | | | | | | |
|-------------|----|------------------------|----|----|----|----|----|----|----|----|----|
| | | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| RESPONDENTS | 1 | 5 | 6 | 6 | 2 | 5 | 3 | 3 | 7 | 5 | 6 |
| | 2 | 4 | 6 | 4 | 6 | 6 | 5 | 6 | 7 | 5 | 5 |
| | 3 | 4 | 5 | 5 | 4 | 6 | 5 | 5 | 5 | 6 | 6 |
| | 4 | 5 | 6 | 5 | 6 | 6 | 6 | 5 | 6 | 5 | 5 |
| | 5 | | | | | | | | | | |
| | 6 | 4 | 7 | 6 | 2 | 1 | 6 | 2 | 7 | 7 | 5 |
| | 7 | | | | | | | | | | |
| | 8 | | | | | | | | | | |
| | 9 | 6 | 7 | 6 | 4 | 4 | 4 | 7 | 5 | 6 | 4 |
| | 10 | 5 | 7 | 6 | 5 | 6 | 6 | 5 | 6 | 6 | 5 |
| | 11 | 5 | 6 | 6 | 6 | 6 | 5 | 6 | 7 | 5 | 6 |
| | 12 | 5 | 6 | 5 | 5 | 4 | 5 | 4 | 6 | 5 | 5 |
| | 13 | 4 | 5 | 5 | 5 | 4 | 5 | 6 | 5 | 5 | 5 |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | 4 | 7 | 5 | 2 | 4 | 5 | 5 | 6 | 6 | 5 |
| | 17 | | | | | | | | | | |
| | 18 | | | | | | | | | | |
| | 19 | 5 | 7 | 6 | 1 | 6 | 4 | 4 | 6 | 3 | 4 |
| | 20 | | | | | | | | | | |
| | 21 | 4 | 6 | 6 | 5 | 4 | 6 | 6 | 6 | 5 | 5 |
| | 22 | 7 | 7 | 7 | 6 | 1 | 4 | 6 | 7 | 6 | 4 |
| | 23 | | | | | | | | | | |
| | 24 | 4 | 6 | 5 | 5 | 6 | 6 | 5 | 6 | 4 | 5 |
| | 25 | 5 | 5 | 6 | 4 | 6 | 6 | 5 | 6 | 5 | 5 |
| | 26 | 4 | 6 | 6 | 5 | 3 | 6 | 6 | 6 | 5 | 2 |
| | 27 | 5 | 6 | 6 | 6 | 2 | 6 | 5 | 5 | 5 | 5 |
| | 28 | 6 | 7 | 7 | 1 | 2 | 5 | 5 | 6 | 6 | 6 |
| | 29 | 5 | 6 | 5 | 5 | 4 | 6 | 5 | 6 | 5 | 5 |
| | 30 | 5 | 6 | 6 | 5 | 5 | 5 | 5 | 6 | 5 | 4 |

| | | <u>Question Number</u> | | | | | | | | | |
|-------------|----|------------------------|----|----|----|----|----|----|----|----|----|
| | | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| RESPONDENTS | 1 | 7 | 4 | 5 | 6 | 5 | 3 | 6 | 6 | 3 | 5 |
| | 2 | 6 | 3 | 7 | 7 | 6 | 5 | 7 | 7 | 6 | 7 |
| | 3 | 6 | 3 | 5 | 6 | 5 | 4 | 5 | 5 | 5 | 4 |
| | 4 | 5 | 5 | 4 | 5 | 5 | 4 | 6 | 6 | 6 | 5 |
| | 5 | | | | | | | | | | |
| | 6 | 7 | 2 | 7 | 7 | 5 | 4 | 6 | 6 | 1 | 4 |
| | 7 | | | | | | | | | | |
| | 8 | | | | | | | | | | |
| | 9 | 6 | 4 | 6 | 4 | 5 | 3 | 7 | 7 | 5 | 4 |
| | 10 | 6 | 5 | 5 | 5 | 5 | 4 | 6 | 7 | 6 | 4 |
| | 11 | 7 | 5 | 5 | 6 | 3 | 4 | 7 | 5 | 5 | 6 |
| | 12 | 6 | 3 | 5 | 5 | 5 | 5 | 6 | 7 | 3 | 5 |
| | 13 | 6 | 4 | 4 | 5 | 5 | 4 | 5 | 5 | 5 | 5 |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | 6 | 3 | 6 | 7 | 5 | 3 | 6 | 7 | 5 | 6 |
| | 17 | | | | | | | | | | |
| | 18 | | | | | | | | | | |
| | 19 | 6 | 4 | 4 | 5 | 4 | 4 | 6 | 7 | 6 | 6 |
| | 20 | | | | | | | | | | |
| | 21 | 5 | 5 | 6 | 5 | 5 | 4 | 4 | 6 | 6 | 6 |
| | 22 | 7 | 4 | 5 | 5 | 6 | 4 | 6 | 7 | 5 | 6 |
| | 23 | | | | | | | | | | |
| | 24 | 6 | 4 | 5 | 5 | 3 | 4 | 7 | 6 | 4 | 5 |
| | 25 | 6 | 6 | 5 | 6 | 5 | 5 | 6 | 6 | 5 | 6 |
| | 26 | 6 | 4 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 5 |
| | 27 | 6 | 5 | 5 | 6 | 5 | 5 | 6 | 7 | 4 | 5 |
| | 28 | 5 | 6 | 7 | 6 | . | . | 5 | 7 | 7 | 5 |
| | 29 | 6 | 5 | 5 | 6 | 5 | 5 | 6 | 5 | 6 | 5 |
| | 30 | 5 | 4 | 5 | 5 | 5 | 5 | 6 | 7 | 5 | 5 |

| | | <u>Question Number</u> | | | | | | | | | |
|-------------|----|------------------------|----|----|----|----|----|----|----|----|----|
| | | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| RESPONDENTS | 1 | 7 | 6 | 6 | 6 | 2 | 5 | 5 | 5 | 6 | 5 |
| | 2 | 7 | 3 | 7 | 4 | 4 | 5 | 5 | 6 | 6 | 3 |
| | 3 | 5 | 5 | 6 | 5 | 5 | 6 | 5 | 5 | 6 | 2 |
| | 4 | 6 | 5 | 6 | 6 | 5 | 5 | 5 | 6 | 5 | 5 |
| | 5 | | | | | | | | | | |
| | 6 | 7 | 6 | 5 | 7 | 1 | 6 | 7 | 5 | 3 | 1 |
| | 7 | | | | | | | | | | |
| | 8 | | | | | | | | | | |
| | 9 | 4 | 5 | 6 | 6 | 4 | 4 | 4 | 5 | 5 | 4 |
| | 10 | . | 6 | 6 | 6 | 4 | 6 | 5 | 5 | . | 5 |
| | 11 | 6 | 6 | 7 | 6 | 4 | 5 | 5 | 5 | 6 | 5 |
| | 12 | 6 | 6 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 4 |
| | 13 | 5 | 4 | 5 | 3 | 4 | 5 | 4 | 5 | 5 | 4 |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | 6 | 2 | 2 | 6 | 4 | 5 | 3 | 5 | 5 | 3 |
| | 17 | | | | | | | | | | |
| | 18 | | | | | | | | | | |
| | 19 | 4 | 2 | 6 | 6 | 4 | 5 | 4 | 4 | 3 | 5 |
| | 20 | | | | | | | | | | |
| | 21 | 6 | 6 | 5 | 6 | 6 | 5 | 4 | 6 | 6 | 6 |
| | 22 | 7 | 3 | 7 | 7 | 7 | 7 | 6 | 6 | 4 | 6 |
| | 23 | | | | | | | | | | |
| | 24 | 5 | 5 | 6 | 6 | 4 | 5 | 4 | 4 | 5 | 5 |
| | 25 | 6 | 4 | 5 | 6 | 5 | 5 | 4 | 5 | 5 | 5 |
| | 26 | 6 | 5 | 6 | 6 | 4 | 5 | 5 | 2 | 5 | 5 |
| | 27 | 6 | 2 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 |
| | 28 | 7 | 5 | 7 | 7 | 7 | 6 | 6 | 7 | 7 | 6 |
| | 29 | 6 | 5 | 6 | 6 | 4 | 5 | 5 | 5 | 5 | 5 |
| | 30 | 6 | 3 | 3 | 5 | 6 | 5 | 5 | 5 | 5 | 5 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | 5 | 5 | 3 | 4 | 7 | 4 | 5 | 5 | 6 | 6 |
| 2 | 5 | 5 | 4 | 4 | 7 | 7 | 4 | 7 | 4 | 4 |
| 3 | 4 | 5 | 5 | 6 | 7 | 5 | 5 | 5 | 5 | 6 |
| 4 | 5 | 5 | 5 | 5 | 6 | 4 | 6 | 5 | 6 | 6 |
| 5 | | | | | | | | | | |
| 6 | 2 | 1 | 1 | 3 | 6 | 6 | 4 | 1 | 7 | 7 |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 5 | 6 | 4 | 4 | 6 | 4 | 6 | 6 | 4 | 4 |
| 10 | 5 | 4 | 5 | 4 | 5 | 5 | 5 | 6 | 5 | 5 |
| 11 | 3 | 5 | 4 | 4 | 6 | 6 | 4 | 6 | 6 | 6 |
| 12 | 6 | 5 | 6 | 4 | 6 | 5 | 5 | 6 | 6 | 6 |
| 13 | 5 | 4 | 5 | 5 | 6 | 5 | 4 | 4 | 4 | 6 |
| 14 | | | | | | | | | | |
| 15 | | | | | | | | | | |
| 16 | 3 | 5 | 5 | 5 | 6 | 5 | 5 | 3 | 6 | 6 |
| 17 | | | | | | | | | | |
| 18 | | | | | | | | | | |
| 19 | 7 | 5 | 4 | 4 | 6 | 3 | 5 | 4 | 6 | 6 |
| 20 | | | | | | | | | | |
| 21 | 5 | 5 | 6 | 4 | 6 | 5 | 5 | 5 | 6 | 6 |
| 22 | 6 | 4 | 6 | 5 | 7 | 5 | 7 | 5 | 6 | 6 |
| 23 | | | | | | | | | | |
| 24 | 5 | 4 | 5 | 5 | 6 | 3 | 4 | 5 | 5 | 5 |
| 25 | 3 | 5 | 5 | 5 | 6 | 5 | 5 | 6 | 6 | 6 |
| 26 | 2 | 5 | 4 | 4 | 6 | 5 | 5 | 5 | 6 | 6 |
| 27 | 5 | 5 | 5 | 4 | 6 | 5 | 5 | 5 | 6 | 6 |
| 28 | 7 | 7 | 5 | 3 | 7 | 7 | 7 | 5 | 7 | 7 |
| 29 | 5 | 4 | 5 | 4 | 7 | 3 | 5 | 5 | 6 | 6 |
| 30 | 5 | 4 | 5 | 4 | 7 | 5 | 6 | 6 | 5 | 6 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 5 | 5 | 3 |
| 2 | 4 | 4 | 7 | 5 | 7 | 6 | 7 | 5 | 3 | 3 |
| 3 | 6 | 6 | 6 | 6 | 5 | 5 | 5 | 6 | 5 | 5 |
| 4 | 6 | 6 | 4 | 5 | 5 | 6 | 4 | 4 | 4 | 5 |
| 5 | | | | | | | | | | |
| 6 | 7 | 7 | 4 | 6 | 6 | 7 | 6 | 1 | 4 | 4 |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 4 | 4 | 6 | 5 | 4 | 6 | 2 | 5 | 4 | 3 |
| 10 | 5 | 6 | 4 | 5 | 3 | 6 | 5 | 5 | 4 | 5 |
| 11 | 5 | 6 | 6 | 5 | 5 | 5 | 5 | 3 | 4 | 3 |
| 12 | 6 | 6 | 6 | 5 | 5 | 7 | 5 | 6 | 5 | 5 |
| 13 | 5 | 6 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 5 |
| 14 | | | | | | | | | | |
| 15 | | | | | | | | | | |
| 16 | 6 | 6 | 5 | 5 | 6 | 5 | 6 | 5 | 3 | 2 |
| 17 | | | | | | | | | | |
| 18 | | | | | | | | | | |
| 19 | 6 | 6 | 6 | 5 | 2 | 7 | 5 | 2 | 1 | 3 |
| 20 | | | | | | | | | | |
| 21 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 5 | 4 | 5 |
| 22 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 4 | 4 |
| 23 | | | | | | | | | | |
| 24 | 5 | 6 | 5 | 5 | 5 | . | 5 | 5 | 3 | 4 |
| 25 | 6 | 6 | 6 | 5 | 5 | 6 | 7 | 5 | 5 | 5 |
| 26 | 6 | 6 | 6 | 5 | 5 | 6 | 5 | 3 | 4 | 5 |
| 27 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 28 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 5 | 6 | 6 |
| 29 | 6 | 6 | 6 | 6 | 3 | 6 | 4 | 5 | 4 | 5 |
| 30 | 6 | 5 | 6 | 5 | 4 | 5 | 5 | 5 | 4 | 5 |

| | | <u>Question Number</u> | | | | | | | | | |
|-------------|----|------------------------|----|----|----|----|----|----|----|----|----|
| | | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| RESPONDENTS | 1 | 7 | 3 | 7 | 6 | 5 | 4 | 7 | 7 | 6 | 4 |
| | 2 | 7 | 7 | 7 | 6 | 4 | 4 | 6 | 6 | 5 | 2 |
| | 3 | 5 | 6 | 7 | 6 | 5 | 5 | 6 | 5 | 6 | 6 |
| | 4 | 6 | 6 | 6 | 5 | 5 | 4 | 6 | 6 | 6 | 4 |
| | 5 | | | | | | | | | | |
| | 6 | 7 | 7 | 7 | 7 | 6 | 6 | 7 | 4 | 6 | 3 |
| | 7 | | | | | | | | | | |
| | 8 | | | | | | | | | | |
| | 9 | 6 | 6 | 5 | 7 | 6 | 5 | 7 | 7 | 6 | 3 |
| | 10 | 5 | 7 | 6 | 5 | 5 | 3 | 6 | 5 | 6 | 5 |
| | 11 | 6 | 6 | 6 | 6 | 5 | 5 | 5 | 6 | 4 | 5 |
| | 12 | 7 | 6 | 6 | 6 | 6 | 5 | 7 | 6 | 6 | 5 |
| | 13 | 5 | 5 | 5 | 5 | 5 | 4 | 6 | 5 | 5 | 5 |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | 5 | 6 | 6 | 6 | 5 | . | 6 | 6 | 6 | 3 |
| | 17 | | | | | | | | | | |
| | 18 | | | | | | | | | | |
| | 19 | 6 | 6 | 6 | 7 | 4 | 4 | 6 | 6 | 4 | 4 |
| | 20 | | | | | | | | | | |
| | 21 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 5 |
| | 22 | 6 | 6 | 7 | 5 | 6 | 3 | 5 | 5 | 7 | 6 |
| | 23 | | | | | | | | | | |
| | 24 | 5 | 5 | 5 | 5 | 4 | 3 | 6 | 5 | 4 | 4 |
| | 25 | 6 | 6 | 6 | 5 | 5 | 4 | 6 | 6 | 6 | 4 |
| | 26 | 6 | 6 | 6 | 5 | 5 | 4 | 6 | 6 | 6 | 4 |
| | 27 | 6 | 6 | 6 | 5 | 5 | 4 | 5 | 6 | 6 | 5 |
| | 28 | 7 | 7 | 7 | 7 | 6 | 6 | 7 | 7 | 7 | 4 |
| | 29 | 6 | 6 | 6 | 5 | 6 | 5 | 6 | 6 | 6 | 5 |
| | 30 | 6 | 6 | 6 | 3 | 4 | 4 | 4 | 3 | 5 | 4 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 1 | 5 | 5 | 5 | 3 | 3 | 3 | 6 | 3 | 6 | 3 |
| 2 | 2 | 5 | 3 | 3 | 3 | 2 | 4 | 4 | 3 | 2 |
| 3 | 6 | 5 | 5 | 3 | 4 | 3 | 4 | 4 | 3 | 3 |
| 4 | 5 | 5 | 5 | 3 | 4 | 3 | 4 | 4 | 3 | 3 |
| 5 | | | | | | | | | | |
| 6 | 3 | 4 | 3 | 3 | 3 | 1 | 1 | 6 | 1 | 1 |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 5 | . | . | . | . | . | . | . | 2 | 2 |
| 10 | 6 | 5 | 2 | 3 | 4 | 3 | 5 | 4 | 3 | 3 |
| 11 | 6 | 6 | 3 | 3 | 5 | 3 | 4 | 5 | 5 | 4 |
| 12 | 6 | 6 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 3 |
| 13 | 5 | 5 | 3 | 3 | 5 | 3 | 4 | 5 | 5 | 3 |
| 14 | | | | | | | | | | |
| 15 | | | | | | | | | | |
| 16 | 5 | 5 | 3 | 3 | . | 3 | 4 | 5 | 6 | 3 |
| 17 | | | | | | | | | | |
| 18 | | | | | | | | | | |
| 19 | 6 | 6 | 2 | 1 | 4 | 2 | 2 | 4 | 4 | 4 |
| 20 | | | | | | | | | | |
| 21 | 6 | 6 | 4 | 3 | 5 | 3 | 4 | 4 | 4 | 3 |
| 22 | 6 | 7 | 3 | 6 | 5 | 3 | 4 | 4 | 4 | 5 |
| 23 | | | | | | | | | | |
| 24 | 5 | . | 3 | 2 | 5 | 3 | 4 | 4 | 3 | 3 |
| 25 | 5 | 5 | 3 | 2 | 5 | 3 | 4 | 4 | 3 | 3 |
| 26 | 4 | 5 | 5 | 3 | 3 | 3 | 4 | 4 | 3 | 3 |
| 27 | 6 | 6 | 5 | 4 | 5 | 3 | 4 | 4 | 3 | 4 |
| 28 | 4 | 3 | 5 | 2 | 5 | 3 | 4 | 3 | 1 | 2 |
| 29 | 5 | 5 | 4 | 3 | 5 | 3 | 4 | 4 | 4 | 3 |
| 30 | 5 | 6 | 5 | 4 | 5 | 3 | 4 | 4 | 4 | 3 |

| R E S P O N D E N T S | <u>Question Number</u> | |
|---|------------------------|----|
| | 91 | 92 |
| | 1 | 5 |
| | 2 | 5 |
| | 3 | 4 |
| | 4 | 5 |
| | 5 | 4 |
| | 6 | 3 |
| | 7 | 4 |
| | 8 | |
| | 9 | 4 |
| | 10 | 5 |
| | 11 | 5 |
| | 12 | 4 |
| | 13 | 5 |
| | 14 | 4 |
| | 15 | |
| | 16 | 5 |
| | 17 | 4 |
| | 18 | |
| | 19 | 3 |
| | 20 | 5 |
| | 21 | 4 |
| | 22 | 5 |
| | 23 | |
| | 24 | 5 |
| | 25 | 4 |
| | 26 | 5 |
| | 27 | 4 |
| | 28 | 4 |
| | 29 | 4 |
| | 30 | 5 |

Appendix K: Comments from the Second Delphi Round

Question 1

- None of the comments caused me to change my impression. I retain the same value response as originally. In fact, with longer thought time, I really feel I should change the response from 6 to 7, but won't do so.
- Politics and economic requirements may influence a strategy, but are not the primary drivers.
- The above two requirements drive nearly everything we do. Politics tend to dominate.

Question 2

- I retain my rating, again. I do not believe we adequately use experience or knowledge of history in planning. Most planners I have worked with were pretty much in the dark about historical problems or benefits of planning in military affairs. I don't see much difference today unless, perhaps, the knowledge of history is even lower. Noted that 7 of the responses from the first round indicate a need for study of history or greater use of experience. What I don't understand is how the respondents could say so often, there is a need for history knowledge and experience yet give a median and modal response of 6 on this statement!
- Past experience should have impact, since we don't plan logistics, nothing has impact.
- All too often we repeat past experiences with the same outcome.

Question 3

- My first response was more of a personal view of the importance of combat support considerations. In reality operational commanders don't let logistics limitations affect their decisions greatly.
- I moved from the 4 to the 5 position because I do agree that combat support needs to establish (I question "dictate", though that should sometimes be the case) the scope of mission goals. However, I also feel, as earlier stated, the logistics business should expect, always, to have to strain to meet tactical and/or strategic needs. Yet, at the same time, I strongly feel that the military services, the entire DOD, must begin to do more to cause the three elements of war planning (strategic, tactical, logistics) to better understand each other and their need. Cross fertilization is necessary and essential, I believe!
- Should, but logistics considerations rarely affects strategic decisions. We just assume they can be supported.
- "Should" dictate would be better, unfortunately combat support, particularly sustainment is overlooked for near term goals.
- Do they, no; should they, yes - should have strong considerations.

- Combat support considerations may impact the mission goals, but I don't think I want to go as far as saying they dictate those goals.

Question 4

- All plans must be logistically feasible in addition to being tactically sound in order to succeed. I think any planner worth anything has to consider other factors besides the operations aspect.

- I still don't agree. Certainly, the tactician should be iron-assed and hardheaded about his/her needs for operational plans. But, to proceed "regardless of other considerations" is far too strong willed and hardheaded. Again, I would emphasize that logistics must expect to have strain to meet tactical needs and the expectation should not be that the tactical planning will always be toned down to make it simple or easy for logistics to meet demands and needs.

- The tactician must formulate plans to achieve the strategic goals. He will not ignore other considerations, but if the resources do not stretch to achieve the objective he must formulate plans which minimize risks and still reach goals.

- This could be true, however, his primary purpose is to conduct the operation in terms of force movement, positioning, and battle rather than formulation of plans.

- He must consider available resources and means.

- Hopefully strategy.

Question 5

- I would offer that the industrial preparedness factor is too often assumed away as being something which can be geared up quickly if needed. Too optimistic in short run.

- I cannot change my response! I strongly agree. I must repeat my earlier charge --- we do not now have a defense industrial base. If our strategic planners don't recognize that, we are in very grave trouble!!! What has happened to our shipyards? Our rail system? Our bridges? Our heavy forging capacity/capability? Our basic steel industry? Our micro chip industry? and on and on Of course, if we had a war situation similar to the 2 or more years of buildup time for WWII, and a continental safety, we might build up again an industrial base. But we don't have it today, we can't rely on having a 2 year buildup period, and we cannot continue to rely on foreign producers whom we had better hope will remain friendly and supportive. But, as with our failing strategic stockpile of minerals, much of our foreign support is from countries friendly to the USSR, or likely to be taken over and controlled by them in event of large scale war. Is that wisdom and strategic planning? I cannot see how strategic planning can be effectively accomplished for the USA for a modern war without a ready, reliable industrial base at home. Certainly, working this problem is tough and difficult but it must be done. To

accomplish it we need Congressional and popular support and understanding that we likely will have to have money, large sums of money for many years, to subsidize certain basic industries in order to retain that defense industrial base. It will be expensive but our survival as a great nation will be denied us if we don't attend to it starting immediately!

- Again, it should, but doesn't in practice.
- Limitation depends alot on the range of your plans; 5, 10, 20 years. Still feel that strategic plans are limited somewhat, but technology should be a consideration in strategic plans.
- Although considered in overall planning objectives actual "surge" and expansion are rarely tested. I believe we expect greater production within strategic goals.
- The industrial base today is a limiting factor.
- The industrial base can expand and contract over time (not overnight).

Question 6

- I really don't feel that logistics ought to be in a position to "dictate" to strategic planners. Rather, I think the logisticians should present their limitations case so well that the strategic planners, of their own volition, come to the conclusion they cannot do what they originally had in mind, or in the original timing, with what will probably be available resources. In other words, we logistics people should permit the strategic planners, and tactical, too, to come to their own conclusion about the "iron grip of logistics" - we don't have to dictate!
- Dictate is not true. Combat support is considered via resupply actions which is given attention in deliberate planning, however, we have assumed that the "logistics tail" will always be right behind, when in fact (in several instances) there are shortfalls in resupply and other combat support items.
- Agree with the comment that "dictate" may be a bit strong.

Question 7

- I moved from a 4 to a 5 position because of the comment of one other respondent -- a comment which says "Too often tacticians feel that supply keeps a secret reserve; therefore stated limitations don't apply." That's a strong point reflecting the absence of understanding and trust - the need for which is the point I was trying to make above. Unfortunately, the strategic and tactical planners do not routinely believe logisticians. Nor does the logistocian believe them! We do have problems!
- Should be considered, but operations don't let logisticians impact their decisions.
- Initially we are limited to material within the available supply system. Long-term war another issue.
- I take this to mean the defense supply system. There are significant resources we can mobilize from the civilian

sector. There are selected items of strictly a defense nature which would likely be show stoppers.

- Should have to live with what you have today. The industrial base can provide additional help as it did in WWI and WWII.

- Tacticians do not necessarily consider combat resupply in their plans. Surge, compression, and expansion can increase available resources, but will that be on time?

- Politics does also come into play.

Question 8

- Just the existence of more money, however, will do nothing to improve combat support unless it is channeled into the proper mix of training, R&D, planning and procurement of weapon systems. Balance need to be maintained.

- I sort of agree that money is a prime factor limiting combat support but would hesitate to lay all the blame on the dollar shortage. We have a hell of a large number of lousy planners, poor commanders who would rather not disrupt their peacetime comfort to practice war, and so forth. That sounds harsh, I know, but we don't see much unit effort to teach personnel combat tactics, identification of mines, weapons capability, and so forth. How many of our USAF people could defend an air base, for example? Money is important, but there are many things the local commanders could do without spending large sums. Nevertheless, over all, I would lightly agree that money is the primary limiting factor for combat support. But, I question if unit commanders are doing much to solicit budget funding for realistic preparation for war. Aren't they all relying on someone else to do that for them?

- Money is a factor but lack of foresight can, and often is, the primary limiting factor.

- In the sense that with time money can solve everything if you have enough of it.

- There are often other factors. Need to take a systematic approach. Money will always be a limitation.

- Not usually. The reason for the term "logistics tail" is because logisticians are the last to be notified.

- Funds for direct combat support (munitions/fuel/spares) don't limit as much as funds for combat support infrastructure (strat air, etc).

Question 9

- Many times because of funding considerations it seems we think tactical requirements and if enough money exists then logistics support.

- I still disagree -- and almost "strongly". I certainly do not see strategists informing tacticians and logisticians at the same time. About half of the first round comments agreed with that position although at a less strong position. Interface communications between the 3 warfare planning elements is woefully inadequate -- in part based on

the general feeling that strategic planners seem to think so poorly of logisticians.

- Logisticians are mostly ignored.
- Historically no.
- They should, but don't always.
- I'm indifferent on this.
- Should but often don't.

Question 10

- I revised my response base on what a combat support plan should be composed of" rather than what they are composed of. The general tenor of comments indicates a broad agreement with that condition -- "Should" vice "are". I wish the conditions were such that we could say the plans ARE composed of those elements and more, but ----
- We try to depict a general force (10a) of men and equipment together with the necessary transportation (10g), maintenance (10f), supply (10e), and hopefully security (10c). Little time in a combat support plan is used for training and removal (10b and h). The plan is to have a supportable/supported (10d) force.
- 10b - Combat Support Plans don't provide requirements for developing and training - it assumes this is complete.
- Based on my unfamiliarity with combat support plans, I'll assume that others know more in this area.

Question 11

- There is still many tacticians that don't think logistics or don't understand it. We need more schools like combat support to educate them.
- I agree but think, as stated in first round, they more often think of logisticians as annoyances and restrainers. They don't seem to feel we logisticians belong to the same military force as they. Much of that is our fault, I am convinced. We have historically acted to be perceived as uncooperative and non-understanding. Too often we have seemed to the strategist or tactician to be dedicated to our processes and paper-work more than to mission accomplishment. We have not often given the impression we were willing to exercise innovation or creativity to solve problems constraining strategic or tactical aims. We have been our own worst enemies!
- Most times they don't even see them.
- Often times yes - partly our fault, partly theirs. Our job is support and to point out problem areas - and their solutions.
- Or obstacles.

Question 12

- How did the response equate to median and mode of 6 with the comments made? I cannot change my disagreement stand.
- Do not know.
- Somewhat, but this area doesn't receive the attention OPLANS have and as a result doesn't always live up to what it should do.

- We rarely operate under a wartime man-hour or flying hour program. We are constantly simulating away logistics and support issues.

Question 13

- Too hard to simulate actual wartime conditions to ever know whether this is true.
- If there were time, I would expound further on my thoughts about this but, given the constraints of time, I must refer to my first round comments. Peacetime operations do NOT adequately prepare men and equipment for war! I strongly disagree with the statement that they do. Most of the round one comments are similiar yet the disagreement with the statement must have been much less strong than mine to acquire a median of 2.5 and mode of 3.
- Absolutely not. Lack of realism.
- Probably not. We need to do more "no-notice" and realistic exercises.
- We rarely operate under a wartime man-hour or flying hour program. We are constantly simulating away logistics and support issues.
- How can they when we "simulate" our problems away?
- May be helpful, but not adequate.

Question 14

- Parochialism and selfishness in peacetime will always prevent this.
- Unrealistic tests and lack of coordination between services and allies.
- Probably not.
- If you believe they do, go read the report on TAC's Silver Flag Exercise. All is for the flying schedule.

Question 15

- Don't feel one can exist in a vacuum without the other.
- They should be considered as a whole picture.

Question 16

- Consensus obtained on this question with a median of 7 and a mode of 7.

Question 17

- Totally agree. Mind-set and way of doing business will have to change significantly.
- Surge. We may take some systems earlier or put others on hold. Numerous changes will result from mobilization and industrialization.
- We'll steal what we can - as early armies "foraged" for sustenance.
- I still disagree; I think the system will work.

Question 18

- Maintainability should be more of a built in factor. Shouldn't require maturation of equipment to be maintainable. Maintainability will improve with maturation but isn't necessarily dependent on it.
- I still don't know what you mean by maintainability. The comments of others indicate they, too, were confused. There doesn't seem to be commonality of understanding.
- I'll bend on this one. No real experience.
- Reliability and maintainability. Eventually we'll get out all the bugs.

Question 19

- Agree. The more nonfunctioning wartime men and equipment will just make the wartime situation that much tougher to handle.
- Yes, and even with the programs we have in existence it is still not given much attention.

Question 20

- Tough question to decide on either way. Due to varied definitions of terms. Needs to be more clear as to what items we're talking about.
- The respondent comments indicate confusion about your terminology as I indicated in the first round. I cannot change my response.
- Should, but doesn't.
- Still too vague!
- I read "provides the means" as "a necessary part" of the decision process of distribution and therefore agree.
- In theater distribution is largely determined by political impacts. Preservation/restoration usually occur at depot. Preservation and restoration need to be more clearly defined.
- You can restore assets through distribution systems (ie, depot) and preserve assets by forward basing near theater, but distribution as the means of accomplishing - not directly.
- I evidently don't follow this questiong.

Question 21

- I still don't understand your term "integration" so cannot change my position of "4".
- Should, but I'm not sure we have accomplished it yet.
- "Configuration control" more understandable than integration.
- Maybe the word should be interoperability.
- It should.
- Integration is facilitated by commonality.

Question 22

- Agree, but war does not allow one to operate in a perfect environment. Survivability is essential.
- No change in response.

- Host nation support for example. Logistics intelligence such as what is their logistics support infrastructure (ie. roads, rails, air, vehicles, etc.).
- Watch who we sell the "good stuff" to - after foreign sales, it is all compromised technology.

Question 23

- I am still confused by your term "separation" so cannot change my response.
- Can cause problems; can also save the day. It will impact on the distribution regardless.

Question 24

- Still believe forward echelon areas are too vulnerable to centrally locate a lot of common supply items. As fronts stabilize then items can be moved forward.
- No change in response.
- Forward areas not good for supply, too easy to lose if overrun.
- We don't have enough lift otherwise, but infighting among Allied forces as to who gets what, when, or if we are unable to reach our forward location can cause problems with that school of thought.
- Wrong, wrong, wrong! (See what management thinking does? We expose all assets to attack.)

Question 25

- Like to see containerization be improved to allow its use on more vehicles and not just have one vehicle per container.
- No change in response. From the comments, I think some do not understand the containerization process and effort or its potential for combat support.
- Don't need specially constructed vehicles, already exist.
- Containerization needs to be improved, but not specially constructed vehicles.
- Still strongly disagree, a multipurpose vehicle to avoid dependence on that vehicle for transportation requirements. Also impacts mobility requirements.
- . . . and make them fit on readily available on air, road and sea movers. Let's not use specially constructed vehicles requiring special material handling equipment.
- Don't need more "special purpose".
- Disagree - specialization is the downfall of too many of our services today.

Question 26

- Agree only if material is prepositioned at using location. Material which is malpositioned can hurt as bad as not being prepositioned at all.
- First round comments still apply. Prepositioning is good only if it is in the right location. Our crystal balls are not perfect, though, so we must expect that some prepositioning will be faulty and some will be lost to enemy

action before we can use it. Nevertheless, I favor prepositioning based upon the best thinking of the strategic and tactical planners - in coordination with logisticians for adequate protection, storage, and preservation.

- Depends on what immediate means.
- Yes, if you can get to it and it has been maintained.
- In theory yes, but the warehouses are not full of all the "right" stuff.

Question 27

- This is a negative approach to the concept of prepositioning. Prepositioning cuts down on the most expensive cost we face, ie. airlift and is thus more cost effective than trying to move it all at the last minute.
- No change in response. There is no question prepo ties up assets. But, we have to accept that cost if we accept prepo!
- They are tied up somewhat, but there can be provisions for using prepositioned material as an interim measure.
- True. There is a definite trade off and price tag.
- Mostly true, although some of these assets can be used jointly.
- But that is something good.
- What other uses? If it isn't there when we need it, what good is it.

Question 28

- No change in response. But, I would suggest we must look to more basic construction in combat zones. We should not be providing air-conditioned quarters, brick exchanges, Olympic-size swimming pools, and so forth (as in Vietnam). Combat is stern and harsh. We might wish to ease that sternness a bit with our facilities, but we must be careful not to expend more dollars and other resources than absolutely required.
- Like hardening, etc.

Question 29

- No change in response.
- How many Navy ships have only authorized stock on board? Probably less than 5%.
- Happens in peacetime, war, and always!
- Is it distrust or unfamiliarity

Question 30

- Especially if the prepositioned equipment includes spares kits and easily replaceable or substitution items.
- No change in response. Still confused over your terminology without definition.
- It saves air/sea lift time once again and can increase return to service time on parts/equipment/airframes early in the conflict.
- Prepositioning of supplies does - you don't use equipment (except test) to restore equipment - use it to replace.

Question 31

- Information functions includes everything from LMR (Land Mobile Radio's) to telephones to ADP. It will be awfully tough to operate without any of these.
- No change in response. However, I must agree with other comments that we must learn to operate without specific directions and guidance from outside. And, we should probably not put too strong reliance on availability and use of computers. Certainly, we should use them where appropriate, but we should also be able to effectively function without them. We cannot be assured of always retaining the undisturbed power and communication links.
- Logistics C3 is tremendously important.
- We have to learn to function without info systems because they will be the first to go.

Question 32

- Depends on type of restoration (quick, substitution, or depot repair). Tough to answer without specific information.
- No change in response. I strongly urge our planners NOT to consider the battle area as the place for restoration processes -- if by "restoration" you mean maintenance and repair other than basic needs for combat.
- Weapon systems, etc. have become so complex that seldom are the users the maintainers, replacements will have to be available, so damaged systems can be repaired in the rear areas.
- Depends on capabilities.
- If it does not, the communications and time lag problems may prove fatal.
- Depends on the service, what the item is and where you want your main center for restoration.
- Ref: Yom Kipper War - where is the forward area?

Question 33

- Believe the newer equipment and weapons are getting more reliable and require less overall maintenance knowledge than before. Due to complexity of item however repair to fully capable may not be possible in theater.
- Absolutely! I cannot change my strong agreement with your statement. No evidence has been presented to change my strong feeling.
- Equipment becoming more and more complex.
- Our systems are more complex and yet we go to a remove and replace concept to make it easier on our technicians. Now if we could just buy the extra units . . .
- From what I learned this quarter, this is obviously true. I must have misread the question the last time.

Question 34

- Either delivered to the appropriate level of repair or abandoned! The combat area should not be peopled with

extensive maintenance facilities and technicians which, in and of themselves, create further needs for protection and support not directly related to combat. My response is still "7".

- Short-term; no. Long-term; yes.
- Depends on the items.
- Critical to the restoration process.
- I would hope that would have a fairly high priority.

Question 35

- Agree that survivability of assets is improved which helps offset the factor of being dispersed.
- No change in response.
- I agree ability to restore and maintain is diminished, but it's a necessary trade-off for survivability.
- Depends on the assets, what type of support is available, and the lift available to get the assets back and forth.

Question 36

- This almost sounds like an assumption or a given. Believe we need to include the words "good preparation and planning will help ensure development of men"
- My response is 4.5. I would like to comment more, but time doesn't permit.
- Unclear - probably.
- It should be the case, but I don't see it happening. We are much better off right now than a few years ago, but are not in good shape for the "come as you are" war.
- What do you mean by development of men-training? It can't hurt.
- We work to that goal, but fiscal and political constraints hinder achievement of the goal.

Question 37

- No change in response.
- Simulations, fiscal, and political constraints result in poorly trained soldiers, but there appears no easy method to practice combat.
- It depends - Some exercises have been good (ie: Salty Demo). Some were almost a waste of time (ie: Silver Flag).

Question 38

- No change in response.
- It should go without saying.
- And the tactician aware of the capabilities of the logistician. It makes it easier all the way around.
- "They are sly and cunning and bear considerable watching."

Question 39

- Feel the operational commander will rely more on practical experience than on formal education.
- No change in response.
- Operational commanders seldom receive formal training in logistics, if they did it may impact on their combat decisions.

- Past experience will drive many decisions. May, in fact, be the driving force.
- Experience plays a big role. He may or may not get a formal education except through Professional Military Education.
- It should have an impact, but he has a staff for both inputs.

Question 40

- No change in response.
- More likely than not.

Question 41

- No change in response.
- That's what we pay the area commander to do - make decisions.
- Prior planning should eliminate some of these, but many decisions will be made on the spot.
- Agree - they should be made on the spot. Don't agree that they ever will.

Question 42

- No change in response. I wonder how the median and mode got to "5" with the comments made.
- Don't understand how the majority of comments disagree yet median/mode agree.
- Disagree that the Combat Support concepts will tend to be more simple.
- They will be general in nature and leave out specifics.

Question 43

- No change in response.
- Logistics is a national responsibility.
- Politics will hamper.
- We will need to know what our allies will provide.

Question 44

- No change in response and I still don't understand your term "integration" as used in the sentence listing "among manpower, facilities, information, and materials".
- I think this is a discussion used to satisfy allies and Congress. In reality we will and must depend on our own support.
- Share and share alike.

Question 45

- Disagree that logistics requires anymore integration than tactics and strategy.
- No change in response.
- All require equal integration.
- Both are required.
- Tactics is shaping our fighting battles and combat support is going to make it or break it.
- The same effort.

Question 46

- No change in response. I still have trouble with your undefined terminology; this time "removal".
- Based on the scenerio, this is probably true.

Question 47

- No change in response.
- Not initially.
- Might, might not. Are the returning flights empty? During the initial stages, yes.
- I have a better understanding of this activity now.

Question 48

- I moved from "7" to "6", but my first round comments still apply.
- Should be.
- It could be that there isn't a method to transport them out of the area.
- Availability of means to remove it.

Question 49

- Conflict will lead to a much different perspective on people's concern for doing things by the book, neatly and safely. Getting the job done will be uppermost.
- No change in response.
- Methods and control will diminish, but not disappear.
- Will not disappear totally.
- Probably.
- Reference: WWII and Pacific - we left a trail of supplies and equipment from Honolulu to Okinawa - all abandoned.

Question 50

- No change in response.
- It probably should, but I don't think it will.
- Probably should, but don't think it will.
- More disposal stuff, manage it.
- As the number of assets needing dispoal increases during the conflict so too will the opportunities to communicate.

Question 51

- I didn't change my response, but I did add something to my thoughts based on the comments of the other respondents - the idea that offensive actions would be primary. I recognize we don't begin wars so we must start in a reactive mode. Initially, that might mean a lot of concentration on preserving men and equipment but not at the expense of doing our damndest to hit back at the attackers and destroy them. No doubt there would be heavy turmoil caused by the conflicting desires to preserve self on the one hand and to fight off the aggressor on the other. All the more reason

for the definition of our intentions before conflict begins so that everyone knows and can respond accordingly. It certainly would not be wise to allow everyone to make locally based decisions if there were no overall guidance.

- It will have an impact, but will be true only if we are in imminent danger of being overpowered.
- Based on the scenerio, this is true. First order is to get the area ready for the forces - need shelters, messing and a command center.
- How to win the war/gain offensive.

Question 52

- No change in response.
- Will make them less capable and less survivable.
- Depend on scale of conflict, smaller units, more decentralized may be harder to preserve.
- Dispersal!

Question 53

- Can't relate preservation with construction.
- No change in response.
- If it doesn't exist before conflict starts, there is little hope of constructing during conflict.
- Will play a major role especially in NATO first strike / PACAF.
- Based on scenerio this could be true.

Question 54

- Depends on the definition on what they are designed to do.
- I am still lost with your terms and cannot respond so I must remain at "4".
- Can, will is too strong.
- May or may not. Need specifics.
- If we are talking E-3A, RC-135, etc., yes.

Question 55

- No change in response.

Question 56

- Again the answer to this won't be known until the systems are proven or tested under actual combat conditions.
- I can't change my response but, as I review the first round comments, I very strongly feel my confusion on your statement is borne by the other respondents as well. Some definition and explanation would have been helpful.
- The contrary is true.

Question 57

- More a factor of funds than concepts.
- No change.
- Concepts: This is the key - there is not enough mental preparation to survive in battle.

Question 58

- Assuming we are using the same definition of "protection", I agree strongly, as I did on round one. There is no doubt in my mind we would have to expend much effort to protect our life support resources - unless we don't care about survival! We can abandon much of our material resources, but we certainly need to retain food and water, for example, or count on massive defeat.
- I obviously don't understand the intent of the question.
- Transportation.
- Not in comparison to other support.
- Based on the scenerio, it appears that shelters are required, rations are needed, as well as an increased water supply. Yes.
- How expensive is como netting and paint?

Question 59

- No change for reason stated in round one.
- Sure - how many and what will they require?

Question 60

- No change for reason stated in round one.
- What type, climate, etc?

Question 61

- No change for reasons stated in round one.
- What type, climate, etc?

Question 62

- No change for reasons stated in round one.
- Transportation often the long pole.
- Requirements and what is available - vehicles, roads, rail, air, etc.

Question 63

- No change in response.
- May and should be, but in reality I don't think it is.
- By definition - creating and sustaining combat capability.

Question 64

- Agree that this is necessary. Main flaw is that combat support experts wait for the tacticians to tell them what they need. Lack of knowledge makes this a poor system. Needs to be communication both ways.
- No change in response.
- They provide the "list", we provide the "money". If they understand the limitations we have established based on

their concept of operations then they can work to achieve the goal within the limits.

- Which they pass to the loggie and say "here, fix this".

Question 65

- Complexity of today's weapons make this a growing area of concern.

- Absolutely! As I have earlier expressed, we don't have an industrial base for all weapons systems. We do have aircraft industrial capacity but not ship building, cannon tubes, and much more. We could make a long and good thesis of this topic alone.

- Industry will respond, the question is the timeliness of delivery. I read the question to lightly.

- Industrial base will respond - may be slow initially.

- Time and cost to field the new systems!

- Probably, but then we did it to ourselves by making super technical systems and not procuring the R&M backing for them when we bought the systems.

- Funding is a bigger issue.

Question 66

- No change in response.

- History supports a definite response.

- Declared war or undeclared war? Yes, politics and fiscal policies could limit us.

Question 67

- My response remains "7".

- Probably, but then we did it to ourselves by making super technical systems and not procuring the R&M backing for them when we bought the systems.

- Reference: Vietnam - industry could not be coaxed from higher profit civilian production.

- Go see the sub-sub-sub-contractor.

Question 68

- The combat support plan is only one part. Need to review the other OPLANS, WSA, Joint Support Plans, and other war plans.

- No change in response.

- One would think so.

- Some knowledge yes, but intel, other planning documents also provide a good deal of knowledge.

- No - how much info is "nofor"?

Question 69

- Not all inclusive but certainly a true statement.

- Still don't understand so I generally disagree.

- I don't understand the statement.

- The nature is composed of other things - enemy, climate, geography, etc.

Question 70

- Not necessarily true.
- I moved from "4" to "3" because I don't think "control" over the developed combat plan is necessarily of value in assuring attainment of strategic goals. The plan itself is not the thing to control: --- the process and personnel of planning more likely are the things to control.
- Not really the plan or the support. It is the whole picture - strategy, tactics, combat support, politics, economics, etc.

Question 71

- No change in response.
- Supply and demand.
- Yes, but the Combat Support is also a big consumer of logistics assets.

Question 72

- Still believe effectiveness of the commanders leadership will outweigh any plan regardless of how well written.
- No change in response.
- (Manager or leader?) Other things will also influence the effectiveness.

Question 73

- No change in response.
- So does "friction in war".

Question 74

- No change in response.
- That's why he is there.
- Based upon advice from his logistics staff.

Question 75

- No change because I have not gained any improved understanding of what you said.

Question 76

- No change in response or comment.
- Sometimes you are faced with two "unacceptable" options. You pick the lessor of the two and move on. If you really mean the loss of assets is absolutely unacceptable, then I would have to chage my answer to agreeing.
- Should not limit.
- What is acceptable varies to whether you are winning or losing. Include many options in the plan.

Question 77

- Moved to "6" in review of the thoughts and ideas expressed.
- They will play a part.

Question 78

- No change in response.
- It should.

Question 79

- No change in response.
- They should be written well enough to mesh together.

Question 80

- No change in response.
- Not yet.
- For smaller functional unit more decentralized, better able to function in the field.
- Depends.
- ADP may not be a player in combat - power will be first to go, then where can you plug the thing in?

Question 81

- Nothing said to this point has changed my position.
- Probably, but environmental factors have been known to give fits to computers. Never forget pencil and paper.
- ADP may not be a player in combat - power will be first to go, then where can you plug the thing in?

Question 82

- No change in response.
- Good experiences are good teachers; bad experiences are better teachers. If they truly understand the plan and how ops and loggies fit together then we are progressing.

Question 83

- Good commanders don't assume anything is complete and concise but have to be prepared for any eventuality.
- No change in response.
- Nobody should assume especially the commander. You do the best you can.
- Hopefully not. That's why he has a staff and it should have support/loggies on it.

Question 84

- Absolutely not!
- Should be this way as much as possible, but realism may provide many limitations and costs of operation. Where cost is not a player, should maximize use of this concept.
- Politics; economics; stimulate. The hard to do like attrition, resupply, base development, etc. restrict our understanding of the support plan.
- This depends on the commander.

Question 85

- Too many unknown variables in wartime to predict these effects accurately.
- No change in response.

- Strict control? Does that equate to enforcing the conclusions to fit his tactical plan? May give him a false sense of security.
- He knows some of the effects and limitations on his mission.
- Strict control means limits or dictates to me - better choice of words might be close watch.

Question 86

- No change in response.
- Should but in the complex environment today it's hard to train individuals in several fields. Should strive to do so more than we currently achieve.
- I believe I answered this as "should insure", but maybe this does not happen in reality.
- Not enough of this occurs.
- Is this another should?

Question 87

- I would say most commanders have a battle staff book of some sort giving him "book" answers. They then bring in real world experiences to make wartime decisions.
- No change in response.
- Need a play book to start with.
- Not sure what you mean.

Question 88

- Don't believe so.
- No change in response.
- Sits on the shelf too much. Security concerns recently have made this even worse.
- Not sure what you mean.

Question 89

- Most recognize the need and push it but not all in the chain are signed up to the same support philosophy.
- No change in response.
- Rarely. Too many times there is "cockpit mentality" of not seeing beyond flying and fighting. It is improving though.

Question 90

- No change in response.
- Aboard ship or in other (small) operational units this is fairly true, but not in most environments.
- We are often not briefed in or are the last to be informed. Many times it is due to poor communications on ops and logs staffs (not to mention IN).

Question 91

- No change in response.
- We should be able to.

Question 92

- No change in response.
- Not sure what you mean.

Appendix L: Results of the Third Delphi Round

| | <u>Question Number</u> | | | | | | | | |
|----|------------------------|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | | | | | | | | | |
| 2 | 6 | 3 | 5 | 2 | 7 | 4 | 5 | 6 | 2 |
| 3 | 6 | 6 | 5 | 5 | 4 | 5 | 4 | 5 | 4 |
| 4 | 7 | 6 | 5 | 5 | 3 | 5 | 6 | 5 | 3 |
| 5 | 6 | 5 | 5 | 4 | 3 | 5 | 5 | 4 | 2 |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | 6 | 6 | 4 | 5 | 2 | 5 | 6 | 4 | 2 |
| 10 | 6 | 6 | 5 | 5 | 3 | 5 | 5 | 5 | 3 |
| 11 | 6 | 6 | 5 | 4 | 4 | 5 | 6 | 6 | 3 |
| 12 | 6 | 6 | 4 | 4 | 3 | 5 | 5 | 5 | 3 |
| 13 | 6 | 5 | 5 | 5 | 3 | 5 | 4 | 5 | 2 |
| 14 | | | | | | | | | |
| 15 | 6 | 6 | 5 | 6 | 7 | 6 | 5 | 6 | 4 |
| 16 | 5 | 6 | 5 | 5 | 3 | 5 | 3 | 5 | 3 |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |
| 21 | 6 | 6 | 5 | 5 | 3 | 5 | 6 | 5 | 3 |
| 22 | 7 | 7 | 5 | 5 | 3 | 4 | 5 | 5 | 4 |
| 23 | 2 | 6 | 5 | 6 | 6 | 7 | 6 | 5 | 3 |
| 24 | 6 | 5 | 3 | 3 | 3 | 3 | 5 | 5 | 3 |
| 25 | 5 | 6 | 5 | 6 | 3 | 5 | 6 | 5 | 2 |
| 26 | 6 | 6 | 3 | 2 | 4 | 5 | 5 | 5 | 3 |
| 27 | 6 | 6 | 6 | 5 | 3 | 5 | 6 | 4 | 3 |
| 28 | 6 | 2 | 3 | 3 | 7 | 6 | 7 | 7 | 1 |
| 29 | 6 | 6 | 5 | 5 | 3 | 6 | 6 | 5 | 3 |
| 30 | 5 | 6 | 5 | 4 | 3 | 5 | 6 | 5 | 3 |

| | <u>Question Number</u> | | | | | | | |
|----|------------------------|-----|-----|-----|-----|-----|-----|-----|
| | 10a | 10b | 10c | 10d | 10e | 10f | 10g | 10h |
| R | | | | | | | | |
| E | | | | | | | | |
| S | | | | | | | | |
| P | | | | | | | | |
| O | | | | | | | | |
| N | | | | | | | | |
| D | | | | | | | | |
| E | | | | | | | | |
| N | | | | | | | | |
| T | | | | | | | | |
| S | | | | | | | | |
| 1 | | | | | | | | |
| 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 4 | 6 | 5 | 5 | 5 | 5 | 5 | 6 | 5 |
| 5 | 5 | 5 | 4 | 4 | 5 | 4 | 5 | 5 |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 10 | 6 | 5 | 5 | 5 | 5 | 5 | 6 | 5 |
| 11 | 6 | 5 | 5 | 5 | 5 | 6 | 7 | 6 |
| 12 | 6 | 5 | 5 | 5 | 5 | 5 | 6 | 5 |
| 13 | 7 | 4 | 5 | 5 | 4 | 5 | 5 | 5 |
| 14 | | | | | | | | |
| 15 | 6 | 5 | 5 | 6 | 6 | 5 | 6 | 5 |
| 16 | 6 | 5 | 5 | 6 | 6 | 5 | 6 | 5 |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| 21 | 6 | 5 | 5 | 5 | 5 | 5 | 6 | 5 |
| 22 | 7 | 7 | 6 | 7 | 5 | 5 | 7 | 7 |
| 23 | 6 | 3 | 4 | 5 | 6 | 5 | 6 | 3 |
| 24 | 5 | 3 | 5 | 5 | 6 | 6 | 6 | 3 |
| 25 | 6 | 5 | 5 | 5 | 6 | 5 | 6 | 4 |
| 26 | 6 | 3 | 5 | 3 | 5 | 5 | 6 | 5 |
| 27 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 |
| 28 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 5 |
| 29 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 30 | 6 | 5 | 5 | 5 | 5 | 5 | 6 | 4 |

| | <u>Question Number</u> | | | | | | | | | |
|---|------------------------|----|----|----|----|----|----|----|----|----|
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| R E S P O N D E N T S | 1 | | | | | | | | | |
| | 2 | 5 | 3 | 1 | 1 | 4 | 7 | 6 | 7 | 2 |
| | 3 | 5 | 6 | 3 | 4 | 5 | 5 | 5 | 5 | 4 |
| | 4 | 5 | 6 | 3 | 2 | 5 | 6 | 6 | 6 | 5 |
| | 5 | 6 | 5 | 2 | 4 | 4 | 6 | 6 | 5 | 5 |
| | 6 | | | | | | | | | |
| | 7 | | | | | | | | | |
| | 8 | | | | | | | | | |
| | 9 | 4 | 4 | 2 | 1 | 6 | 7 | 5 | 7 | 4 |
| | 10 | 5 | 6 | 3 | 2 | 4 | 7 | 5 | 6 | 4 |
| | 11 | 5 | 7 | 3 | 2 | 5 | 6 | 6 | 6 | 4 |
| | 12 | 5 | 6 | 3 | 2 | 5 | 6 | 6 | 6 | 5 |
| | 13 | 6 | 6 | 4 | 3 | 5 | 5 | 5 | 6 | 4 |
| | 14 | | | | | | | | | |
| | 15 | 5 | 6 | 5 | 4 | 6 | 7 | 6 | 6 | 4 |
| | 16 | 3 | 6 | 3 | 2 | 6 | 6 | 6 | 6 | 6 |
| | 17 | | | | | | | | | |
| | 18 | | | | | | | | | |
| | 19 | | | | | | | | | |
| | 20 | | | | | | | | | |
| | 21 | 5 | 6 | 3 | 2 | 5 | 6 | 6 | 6 | 5 |
| | 22 | 4 | 7 | 4 | 3 | 5 | 7 | 7 | 7 | 3 |
| | 23 | 6 | 6 | 2 | 2 | 5 | 6 | 6 | 5 | 5 |
| | 24 | 5 | 5 | 2 | 2 | 5 | 6 | 5 | 6 | 4 |
| | 25 | 5 | 6 | 2 | 2 | 5 | 6 | 6 | 6 | 5 |
| | 26 | 5 | 6 | 3 | 3 | 5 | 6 | 6 | 6 | 4 |
| | 27 | 5 | 5 | 3 | 2 | 5 | 6 | 6 | 6 | 5 |
| | 28 | 7 | 6 | 1 | 1 | 5 | 6 | 5 | 7 | 6 |
| | 29 | 5 | 6 | 2 | 2 | 6 | 5 | 6 | 6 | 4 |
| | 30 | 5 | 6 | 3 | 3 | 6 | 6 | 7 | 6 | 5 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | | | | | | | | | | |
| 2 | 4 | 6 | 4 | 6 | 6 | 5 | 6 | 7 | 5 | 5 |
| 3 | 4 | 5 | 5 | 4 | 6 | 5 | 5 | 5 | 6 | 6 |
| 4 | 5 | 6 | 5 | 5 | 6 | 6 | 5 | 6 | 5 | 5 |
| 5 | 5 | 6 | 6 | 4 | 6 | 5 | 5 | 6 | 6 | 5 |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 6 | 7 | 6 | 4 | 4 | 4 | 6 | 5 | 6 | 4 |
| 10 | 5 | 7 | 6 | 5 | 6 | 6 | 5 | 6 | 6 | 5 |
| 11 | 5 | 6 | 6 | 5 | 6 | 5 | 5 | 7 | 5 | 5 |
| 12 | 5 | 6 | 6 | 5 | 5 | 5 | 5 | 6 | 5 | 5 |
| 13 | 4 | 5 | 5 | 5 | 4 | 5 | 6 | 5 | 5 | 5 |
| 14 | | | | | | | | | | |
| 15 | 5 | 6 | 3 | 3 | 6 | 5 | 6 | 6 | 5 | 6 |
| 16 | 5 | 7 | 6 | 2 | 4 | 5 | 5 | 6 | 5 | 5 |
| 17 | | | | | | | | | | |
| 18 | | | | | | | | | | |
| 19 | | | | | | | | | | |
| 20 | | | | | | | | | | |
| 21 | 5 | 6 | 6 | 5 | 4 | 6 | 5 | 6 | 5 | 5 |
| 22 | 7 | 7 | 7 | 6 | 1 | 4 | 6 | 7 | 6 | 4 |
| 23 | 6 | 6 | 6 | 2 | 3 | 4 | 5 | 7 | 6 | 6 |
| 24 | 4 | 6 | 5 | 5 | 6 | 6 | 5 | 6 | 4 | 5 |
| 25 | 5 | 6 | 6 | 5 | 6 | 6 | 5 | 6 | 5 | 5 |
| 26 | 4 | 6 | 6 | 5 | 4 | 6 | 5 | 6 | 5 | 2 |
| 27 | 5 | 6 | 6 | 5 | 3 | 6 | 5 | 6 | 5 | 5 |
| 28 | 6 | 7 | 7 | 1 | 3 | 5 | 5 | 6 | 6 | 6 |
| 29 | 5 | 6 | 6 | 5 | 4 | 6 | 5 | 6 | 5 | 5 |
| 30 | 5 | 6 | 6 | 5 | 6 | 5 | 5 | 6 | 5 | 4 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | | | | | | | | | | |
| 2 | 6 | 3 | 7 | 7 | | 5 | 7 | 7 | 6 | 7 |
| 3 | 6 | 3 | 5 | 6 | C | 4 | 5 | 5 | 5 | 4 |
| 4 | 6 | 4 | 4 | 5 | O | 4 | 6 | 6 | 6 | 5 |
| 5 | 6 | 3 | 5 | 6 | N | 5 | 6 | 7 | 6 | 6 |
| 6 | | | | | S | | | | | |
| 7 | | | | | E | | | | | |
| 8 | | | | | N | | | | | |
| 9 | 6 | 4 | 6 | 4 | S | 3 | 7 | 7 | 5 | 4 |
| 10 | 6 | 4 | 5 | 5 | U | 4 | 6 | 7 | 6 | 5 |
| 11 | 6 | 5 | 5 | 6 | S | 4 | 6 | 6 | 5 | 5 |
| 12 | 6 | 4 | 5 | 5 | | 4 | 6 | 7 | 3 | 5 |
| 13 | 6 | 4 | 4 | 5 | O | 4 | 5 | 5 | 5 | 5 |
| 14 | | | | | B | | | | | |
| 15 | 6 | 5 | 6 | 5 | T | 5 | 6 | 7 | 6 | 5 |
| 16 | 6 | 3 | 6 | 7 | A | 3 | 6 | 7 | 5 | 6 |
| 17 | | | | | I | | | | | |
| 18 | | | | | N | | | | | |
| 19 | | | | | E | | | | | |
| 20 | | | | | D | | | | | |
| 21 | 6 | 4 | 5 | 5 | | 4 | 6 | 6 | 5 | 5 |
| 22 | 7 | 4 | 5 | 5 | R | 4 | 6 | 7 | 5 | 6 |
| 23 | 6 | 3 | 6 | 6 | O | 4 | 6 | 6 | 6 | 7 |
| 24 | 6 | 4 | 5 | 5 | U | 4 | 7 | 6 | 4 | 5 |
| 25 | 6 | 4 | 5 | 5 | N | 5 | 6 | 6 | 5 | 6 |
| 26 | 6 | 4 | 5 | 5 | D | 5 | 6 | 6 | 6 | 5 |
| 27 | 6 | 4 | 5 | 6 | | 4 | 6 | 7 | 5 | 5 |
| 28 | 6 | 6 | 7 | 6 | T | 5 | 5 | 7 | 7 | 6 |
| 29 | 6 | 5 | 5 | 5 | W | 5 | 6 | 5 | 5 | 5 |
| 30 | 6 | 4 | 5 | 5 | O | 5 | 6 | 7 | 6 | 5 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 1 | | | | | | | | | | |
| 2 | 7 | 3 | 7 | 4 | 4 | | 5 | 6 | 6 | 3 |
| 3 | 5 | 5 | 6 | 5 | 5 | C | 5 | 5 | 6 | 2 |
| 4 | 6 | 5 | 6 | 6 | 4 | O | 5 | 6 | 5 | 5 |
| 5 | . | 5 | 6 | 6 | 5 | N | 5 | 5 | 5 | 5 |
| 6 | | | | | | S | | | | |
| 7 | | | | | | E | | | | |
| 8 | | | | | | N | | | | |
| 9 | 5 | 5 | 6 | 6 | 4 | S | 4 | 5 | 5 | 4 |
| 10 | 6 | 5 | 6 | 6 | 4 | U | 5 | 5 | 5 | 5 |
| 11 | 6 | 5 | 6 | 6 | 4 | S | 5 | 5 | 6 | 5 |
| 12 | 6 | 5 | 6 | 6 | 5 | | 5 | 5 | 5 | 5 |
| 13 | 5 | 4 | 5 | 3 | 4 | O | 4 | 5 | 5 | 4 |
| 14 | | | | | | B | | | | |
| 15 | 6 | 5 | 6 | 6 | 4 | T | 5 | 6 | 6 | 6 |
| 16 | 6 | 2 | 3 | 6 | 4 | A | 3 | 5 | 5 | 3 |
| 17 | | | | | | I | | | | |
| 18 | | | | | | N | | | | |
| 19 | | | | | | E | | | | |
| 20 | | | | | | D | | | | |
| 21 | 6 | 5 | 6 | 6 | 4 | | 5 | 5 | 5 | 5 |
| 22 | 7 | 3 | 7 | 7 | 6 | R | 6 | 6 | 4 | 6 |
| 23 | 7 | 3 | 6 | 6 | 4 | O | 5 | 4 | 6 | 5 |
| 24 | 5 | 5 | 6 | 6 | 4 | U | 4 | 4 | 5 | 5 |
| 25 | 6 | 4 | 5 | 6 | 5 | N | 5 | 5 | 5 | 5 |
| 26 | 6 | 5 | 6 | 6 | 4 | D | 5 | 3 | 5 | 5 |
| 27 | 6 | 4 | 6 | 6 | 5 | | 5 | 5 | 5 | 5 |
| 28 | 7 | 5 | 7 | 7 | 7 | T | 6 | 6 | 7 | 6 |
| 29 | 6 | 5 | 6 | 6 | 4 | W | 6 | 5 | 5 | 5 |
| 30 | 6 | 5 | 6 | 6 | 5 | O | 5 | 5 | 5 | 5 |

| | <u>Question Number</u> | | | | | | | | | | |
|---|------------------------|----|----|----|----|----|----|----|----|----|---|
| | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | |
| R E S P O N D E N T S | 1 | | | | | | | | | | C O N S E N S U S O B T A I N E D |
| | 2 | 5 | 5 | 4 | 4 | 7 | 7 | 4 | 7 | 4 | |
| | 3 | 4 | 5 | 5 | 6 | 7 | 5 | 5 | 5 | 5 | |
| | 4 | 5 | 5 | 5 | 5 | 6 | 4 | 5 | 5 | 6 | |
| | 5 | 6 | 6 | 5 | 4 | 6 | 5 | 4 | 5 | 6 | |
| | 6 | | | | | | | | | | |
| | 7 | | | | | | | | | | |
| | 8 | | | | | | | | | | |
| | 9 | 4 | 6 | 4 | 4 | 6 | 4 | 6 | 6 | 5 | |
| | 10 | 5 | 5 | 5 | 4 | 6 | 5 | 5 | 5 | 6 | |
| | 11 | 4 | 5 | 5 | 4 | 6 | 5 | 4 | 5 | 6 | |
| | 12 | 6 | 5 | 6 | 4 | 6 | 5 | 5 | 5 | 6 | |
| | 13 | 5 | 4 | 5 | 5 | 6 | 5 | 4 | 4 | 4 | |
| | 14 | | | | | | | | | | |
| | 15 | 6 | 5 | 5 | 4 | 7 | 6 | 4 | 6 | 6 | R O U N D T W O |
| | 16 | 3 | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 6 | |
| | 17 | | | | | | | | | | |
| | 18 | | | | | | | | | | |
| | 19 | | | | | | | | | | |
| | 20 | | | | | | | | | | |
| | 21 | 5 | 5 | 5 | 4 | 6 | 5 | 5 | 5 | 6 | |
| | 22 | 6 | 4 | 6 | 5 | 7 | 5 | 7 | 5 | 6 | |
| | 23 | 5 | 6 | 5 | 4 | 7 | 6 | 6 | 6 | 5 | |
| | 24 | 5 | 4 | 5 | 5 | 6 | 3 | 4 | 5 | 5 | |
| | 25 | 5 | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 6 | |
| | 26 | 3 | 5 | 5 | 4 | 6 | 5 | 5 | 5 | 6 | |
| | 27 | 5 | 5 | 5 | 4 | 6 | 5 | 5 | 5 | 6 | |
| | 28 | 7 | 7 | 5 | 3 | 7 | 7 | 7 | 5 | 6 | |
| | 29 | 5 | 5 | 5 | 4 | 6 | 4 | 5 | 5 | 6 | |
| | 30 | 5 | 5 | 5 | 4 | 6 | 5 | 6 | 5 | 6 | |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | | | | | | | | | | |
| 2 | 4 | | 7 | | 7 | 6 | 7 | 5 | 3 | 3 |
| 3 | 6 | C | 6 | C | 5 | 5 | 5 | 6 | 5 | 5 |
| 4 | 6 | O | 5 | O | 5 | 6 | 5 | 5 | 4 | 5 |
| 5 | 6 | N | 6 | N | 6 | . | . | . | 3 | 4 |
| 6 | | S | | S | | | | | | |
| 7 | | E | | E | | | | | | |
| 8 | | N | | N | | | | | | |
| 9 | 5 | S | 6 | S | 4 | 6 | 2 | 5 | 4 | 4 |
| 10 | 6 | U | 6 | U | 4 | 6 | 5 | 5 | 4 | 5 |
| 11 | 6 | S | 6 | S | 5 | 6 | 5 | 4 | 4 | 4 |
| 12 | 6 | | 6 | | 5 | 6 | 5 | 5 | 4 | 5 |
| 13 | 5 | O | 5 | O | 5 | 4 | 5 | 4 | 5 | 5 |
| 14 | | B | | B | | | | | | |
| 15 | 6 | T | 6 | T | 6 | 5 | 6 | 6 | 4 | 5 |
| 16 | 6 | A | 6 | A | 5 | 5 | 6 | 5 | 4 | 3 |
| 17 | | I | | I | | | | | | |
| 18 | | N | | N | | | | | | |
| 19 | | E | | E | | | | | | |
| 20 | | D | | D | | | | | | |
| 21 | 6 | | 6 | | 5 | 6 | 5 | 5 | 4 | 5 |
| 22 | 6 | R | 6 | R | 5 | 5 | 5 | 5 | 4 | 4 |
| 23 | 7 | O | 6 | O | 4 | 6 | 5 | 4 | 4 | 4 |
| 24 | 5 | U | 5 | U | 5 | . | 5 | 5 | 3 | 4 |
| 25 | 6 | N | 6 | N | 5 | 6 | 6 | 5 | 4 | 5 |
| 26 | 6 | D | 6 | D | 5 | 6 | 5 | 5 | 4 | 5 |
| 27 | 6 | | 6 | | 5 | 5 | 5 | 5 | 4 | 5 |
| 28 | 7 | T | 6 | T | 7 | 7 | 7 | 5 | 6 | 6 |
| 29 | 6 | W | 6 | W | 4 | 6 | 4 | 5 | 4 | 5 |
| 30 | 6 | O | 5 | O | 5 | 6 | 5 | 5 | 4 | 5 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | | | | | | | | | | |
| 2 | 7 | 7 | 7 | 7 | 4 | 4 | 6 | 6 | 5 | 2 |
| 3 | 5 | 6 | 7 | 6 | 5 | 5 | 6 | 5 | 6 | 6 |
| 4 | 6 | 6 | 6 | 5 | 5 | 4 | 6 | 6 | 6 | 4 |
| 5 | 6 | 5 | 6 | 5 | 5 | 3 | 5 | 6 | 6 | 3 |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 6 | 6 | 5 | 7 | 6 | 5 | 7 | 7 | 6 | 3 |
| 10 | 6 | 6 | 6 | 5 | 5 | 4 | 6 | 6 | 6 | 5 |
| 11 | 6 | 6 | 6 | 6 | 5 | 5 | 6 | 6 | 5 | 5 |
| 12 | 6 | 6 | 6 | 6 | 5 | 4 | 6 | 5 | 6 | 5 |
| 13 | 5 | 5 | 5 | 5 | 5 | 4 | 6 | 5 | 5 | 5 |
| 14 | | | | | | | | | | |
| 15 | 5 | 6 | 6 | 6 | 5 | 5 | 6 | 6 | 6 | 6 |
| 16 | 5 | 6 | 6 | 6 | 5 | 3 | 6 | 6 | 6 | 3 |
| 17 | | | | | | | | | | |
| 18 | | | | | | | | | | |
| 19 | | | | | | | | | | |
| 20 | | | | | | | | | | |
| 21 | 6 | 6 | 6 | 6 | 5 | 4 | 6 | 6 | 6 | 5 |
| 22 | 6 | 6 | 7 | 5 | 6 | 3 | 5 | 5 | 7 | 6 |
| 23 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 6 | 4 |
| 24 | 5 | 5 | 5 | 5 | 4 | 3 | 6 | 5 | 4 | 4 |
| 25 | 6 | 6 | 6 | 5 | 5 | 4 | 6 | 6 | 6 | 4 |
| 26 | 6 | 6 | 6 | 6 | 5 | 4 | 6 | 6 | 6 | 4 |
| 27 | 6 | 6 | 6 | 5 | 5 | 4 | 5 | 6 | 6 | 5 |
| 28 | 7 | 6 | 6 | 7 | 6 | 5 | 6 | 7 | 7 | 5 |
| 29 | 6 | 6 | 6 | 6 | 5 | 4 | 6 | 6 | 6 | 5 |
| 30 | 6 | 6 | 6 | 5 | 5 | 4 | 6 | 6 | 6 | 5 |

| | <u>Question Number</u> | | | | | | | | | |
|----|------------------------|----|----|----|----|----|----|----|----|----|
| | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| R | | | | | | | | | | |
| E | | | | | | | | | | |
| S | | | | | | | | | | |
| P | | | | | | | | | | |
| O | | | | | | | | | | |
| N | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| T | | | | | | | | | | |
| S | | | | | | | | | | |
| 1 | | | | | | | | | | |
| 2 | 2 | 5 | 3 | 3 | 3 | | | | 3 | 2 |
| 3 | 6 | 5 | 5 | 3 | 4 | C | C | C | 3 | 3 |
| 4 | 5 | 5 | 4 | 3 | 5 | O | O | O | 3 | 3 |
| 5 | 5 | 5 | 3 | 5 | 5 | N | N | N | 3 | 2 |
| 6 | | | | | | S | S | S | | |
| 7 | | | | | | E | E | E | | |
| 8 | | | | | | N | N | N | | |
| 9 | 5 | 4 | 4 | 4 | 4 | S | S | S | 2 | 2 |
| 10 | 5 | 5 | 3 | 3 | 5 | U | U | U | 3 | 3 |
| 11 | 5 | 5 | 3 | 3 | 5 | S | S | S | 4 | 4 |
| 12 | 5 | 5 | 4 | 3 | 4 | | | | 3 | 3 |
| 13 | 5 | 5 | 3 | 3 | 5 | O | O | O | 5 | 3 |
| 14 | | | | | | B | B | B | | |
| 15 | 5 | 5 | 5 | 5 | 5 | T | T | T | 6 | 4 |
| 16 | 5 | 5 | 3 | 3 | 5 | A | A | A | 5 | 3 |
| 17 | | | | | | I | I | I | | |
| 18 | | | | | | N | N | N | | |
| 19 | | | | | | E | E | E | | |
| 20 | | | | | | D | D | D | | |
| 21 | 5 | 5 | 3 | 3 | 5 | | | | 3 | 3 |
| 22 | 6 | 7 | 3 | 6 | 5 | R | R | R | 4 | 5 |
| 23 | 4 | 3 | 3 | 2 | 4 | O | O | O | 2 | 3 |
| 24 | 5 | . | 3 | 2 | 5 | U | U | U | 3 | 3 |
| 25 | 5 | 5 | 3 | 2 | 5 | N | N | N | 3 | 3 |
| 26 | 4 | 5 | 5 | 3 | 5 | D | D | D | 3 | 3 |
| 27 | 5 | 5 | 4 | 3 | 5 | | | | 3 | 4 |
| 28 | 5 | 3 | 5 | 2 | 5 | T | T | T | 1 | 2 |
| 29 | 5 | 5 | 3 | 3 | 4 | W | W | W | 3 | 3 |
| 30 | 5 | 6 | 4 | 4 | 5 | O | O | O | 3 | 3 |

Question Number

| | | |
|---|----|----|
| | 91 | 92 |
| | | |
| | | |
| | | |
| | C | C |
| | O | O |
| | N | N |
| | S | S |
| | E | E |
| R | N | N |
| E | S | S |
| S | U | U |
| P | S | S |
| O | | |
| N | O | O |
| D | B | B |
| E | T | T |
| N | A | A |
| D | I | I |
| E | N | N |
| N | E | E |
| T | D | D |
| S | | |
| | R | R |
| | O | O |
| | U | U |
| | N | N |
| | D | D |
| | | |
| | T | T |
| | W | W |
| | O | O |

Appendix M: Comments from the Third Delphi Round

Question 1

- O.K. yes, but the question is "so what?"

Question 2

- O.K. I will sway.

Question 3

- O.K. I will sway.
- They should but they do not.
- Should but do not always.

Question 4

Question 5

Question 6

- O.K. I will sway.

Question 7

Question 8

- Yes . . . and . . . No!

Question 9

- The J-2 and J-5 have not and do not intend to share intel information.

Question 10

Question 11

- I agree.

Question 12

Question 13

- We all know about this one.

Question 14

Question 15

- I hold my ground . . . middle as it may be.

Question 16

Question 17

- They will not - period!

Question 18

- Yes . . . But.

Question 19

- O.K.

Question 20

- Helps but also need maintenance to use the assets.

Question 21

Question 22

- Absolutely. No change in response.

Question 23

- But helps survivability.

Question 24

- Centrally located warehouses are also great centrally located targets.

Question 25

- Maybe I do not understand question. Specially constructed vehicles are doomed to become unusable when commodity runs out. I favor General Purpose!

Question 26

Question 27

- You pay your money, you take your chances.

Question 28

Question 29

- Human nature . . . since forever. No change.

Question 30

- We do not preposition extra equipmennt. What is there is used in the conflict.

Question 31

Question 32

- O.K. . . . But it still depends on type of restoring.
- Have not these guys heard of Battle Damage Repair?

Question 33

Question 34

- Need to evacuate retrograde critical to Air Forces. Too much investment to ignore. Retrograde is key to pipeline in wartime.

Question 35

Question 36

- Should happen prior; also happens as we mobilize and expand and learn from mistakes.

Question 37

Question 38

Question 39

- Navy just started a Post Graduate course on Operational Logistics - Navy members were never schooled before.

Question 40

- Yes . . . more likely than not.

Question 41

Question 42

- Disagree not strongly . . . I will change.

- Still do not agree. Will tend toward being too complex and get simplified in execution.

- O.K. I yield a little.

Question 43

Question 44

Question 45

Question 46

Question 47

Question 48

- If a piece of equipment is not in the way or needed elsewhere, leave it where it is and concentrate on the war.

Question 49

- Re: World War II experience, Korea (Start of brass industry there), etc.

Question 50

Question 51

Question 52

O.K.

Question 53

Question 54

Question 55

- Agree . . . I will change.

Question 56

Question 57

- Ref: Salty Demo '85.

Question 58

- No Change

Question 59

- Sure

Question 60

Question 61

- Sure

Question 62

Question 63

- I was out in left field . . . sure.

Question 64

Question 65

- Sure will . . . I will move but not that far.

Question 66

Question 67

Question 68

- Our stuff is "nofohn", their stuff is "nofohn" - I am surprised we talk at all.

Question 69

Question 70

Question 71

- Yes - O.K.

Question 72

Question 73

Question 74

Question 75

Question 76

- Sure . . . I will join the pack at the middle.

Question 77

Question 78

Question 79

Question 80

Question 81

Question 82

Question 83

Question 84

Question 85
- Maybe

Question 86

Question 87

Question 88

Question 89

Question 90

Question 91

Question 92

Appendix N: Statistical Results for Survey Questions

Results for Survey Questions Related to Investigative Question #1

| | Ques. #1 | | | Ques. #3 | | | Ques. #4 | | |
|-----------|----------|-----|-------|----------|-----|----|----------|-------|-------|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 6 | 6 | 6 | 6 | 5 | 5 | 2 | 2/5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 6 | 6 | 6 | 5 | 4/5 | 5 | 5/6 | 5 | 5 |
| Consensus | N | N | Y | N | N | Y | N | N | Y |
| Wilcoxon | 116 | 106 | 111.5 | 92.5 | 68 | 97 | 149 | 124.5 | 120.5 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | N | Y | Y | Y | Y |
| Mode | 6 | 6 | 6 | 5 | 5 | 5 | 2/5/6 | 5 | 5 |
| Consensus | N | N | Y | N | N | Y | N | N | N |

| | Ques. #5 | | | Ques. #6 | | | Ques. #7 | | |
|-----------|----------|------|-----|----------|------|-------|----------|-----|----|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 2/7 | 3 | 3 | 6 | 5 | 5 | 6 | 5/6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 3 | 4 | 3 | 5 | 5 | 5 | 5 | 6 | 5 |
| Consensus | N | N | N | N | N | Y | N | N | N |
| Wilcoxon | 93.5 | 91.5 | 102 | 107 | 93.5 | 113.5 | 100.5 | 89 | 84 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 2 | 3 | 3 | 5 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | N |

Results for Survey Questions Related to Investigative Question #2

| | Ques. #10A | | | Ques. #10B | | | Ques. #10C | | |
|-----------|------------|----|-------|------------|----|-----|------------|----|----|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 6/7 | 6 | 6 | 3/5 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 8 | 8 | 10 | 8 | 8 | 10 | 8 | 8 | 10 |
| Mode | 6 | 6 | 6 | 5 | 5 | 5 | 4/5 | 5 | 5 |
| Consensus | N | N | N | N | Y | Y | N | N | Y |
| Wilcoxon | 101.5 | 90 | 107.5 | 107 | 81 | 109 | 87 | 72 | 96 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | Y |

| | Ques. #10D | | | Ques. #10E | | | Ques. #10F | | |
|-----------|------------|----|-----|------------|------|----|------------|----|-----|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 6 | 5 | 5 | 5 | 5 | 5 | 3/4/7 | 5 | 5 |
| Consensus | N | N | Y | N | N | N | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 8 | 8 | 10 | 8 | 8 | 10 | 8 | 8 | 10 |
| Mode | 4/5 | 5 | 5 | 5/6 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | Y |
| Wilcoxon | 93 | 74 | 106 | 96.5 | 75.5 | 94 | 108.5 | 86 | 105 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 4/5/6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | Y |

| Ques. #10G | | | Ques. #10H | | | Ques. #15 | | |
|------------|-------|------|------------|-------|-----|-----------|------|----|
| Round | | | Round | | | Round | | |
| 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 11 |
| Mode | 5 | 6 | 6 | 3/4/5 | 5 | 5 | 6 | 5 |
| Consensus | N | N | N | N | N | N | N | Y |
| Navy Pop. | | | | | | | | |
| Size | 8 | 8 | 10 | 8 | 8 | 10 | 8 | 9 |
| Mode | 6 | 5 | 5 | 5 | 4/5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | Y | N | N |
| Wilcoxon | 109.5 | 83.5 | 102.5 | 105 | 85 | 128.5 | 85.5 | 76 |
| Combined | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 6 | 6 | 6 | 5 | 5 | 5 | 6 | 5 |
| Consensus | N | N | N | N | N | N | N | N |

Results for Survey Questions Related to Investigative
Question #3

| | Ques. #17 | | | Ques. #18 | | | Ques. #19 | | |
|-----------|-----------|----|-----|-----------|----|----|-----------|-----|----|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 14 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 6 |
| Consensus | N | N | Y | N | N | N | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 6 | 6 | 6 | 5 | 5 | 6 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | Y |
| Wilcoxon | 110 | 88 | 111 | 106.5 | 92 | 92 | 104.5 | 101 | 97 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | N |

| | Ques. #20 | | | Ques. #21 | | | Ques. #22 | | |
|-----------|-----------|------|-----|-----------|------|-----|-----------|-----|-------|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 14 | 12 | 11 | 13 | 12 | 11 | 15 | 12 | 11 |
| Mode | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 8 | 8 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 4 | 4 | 4 | 5 | 4 | 5 | 7 | 7 | 6 |
| Consensus | N | N | N | N | N | Y | N | N | N |
| Wilcoxon | 69 | 77.5 | 109 | 81.5 | 91.5 | 101 | 106.5 | 103 | 107.5 |
| Combined | | | | | | | | | |
| Allowed | N | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 5 | 4/5 | 4 | 5 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | N |

| | Ques. #23 | | | Ques. #24 | | | Ques. #25 | | |
|-----------|-----------|----|------|-----------|-------|----|-----------|-------|-------|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 14 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 6 | 6 | 6 | 6 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 8 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 6 | 5 | 6 | 2 | 5 | 5 | 4 | 4/6 | 6 |
| Consensus | N | N | Y | N | N | N | N | N | N |
| Wilcoxon | 70 | 81 | 96.5 | 113 | 107.5 | 92 | 122.5 | 107.5 | 132.5 |
| Combined | | | | | | | | | |
| Allowed | N | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 6 | 6 | 6 | 6 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | N |

| | Ques. #26 | | | Ques. #27 | | | Ques. #28 | | |
|-----------|-----------|------|------|-----------|------|-------|-----------|------|------|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 6 | 6 | 6 | 5 | 5 | 5 | 7 | 6 | 6 |
| Consensus | N | N | N | N | N | Y | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | Y | N | N | Y | N | N | N |
| Wilcoxon | 103.5 | 96.5 | 96.5 | 111 | 98.5 | 116.5 | 101 | 87.5 | 88.5 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 6 | 6 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | Y | N | N | N |

| | Ques. #29 | | | Ques. #30 | | | Ques. #31 | | |
|-----------|-----------|-----|-----|-----------|-------|-----|-----------|-------|-----|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 14 | 12 | 11 |
| Mode | 5 | 5 | 5 | 4 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 8 | 9 | 10 |
| Mode | 6 | 5/6 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | Y | N | N | Y |
| Wilcoxon | 135.5 | 125 | 120 | 120.5 | 111.5 | 119 | 85 | 107.5 | 105 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 4 | 6 |
| Consensus | N | N | N | N | N | N | N | N | Y |

| | Ques. #32 | | | Ques. #33 | | | Ques. #34 | | |
|-----------|-----------|-----|-------|-----------|----|-------|-----------|----|-------|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | Y | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 5 | 3/5 | 4 | 5/6 | 5 | 5 | 5/7 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | N |
| Wilcoxon | 107 | 80 | 104.5 | 120 | 96 | 100.5 | 119 | 97 | 108.5 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | N |

| | Ques. #35 | | | | Ques. #36 | | | | Ques. #37 | | |
|-----------|-----------|------|---|--|-----------|----|----|--|-----------|-----|-----|
| | Round | | | | Round | | | | Round | | |
| | 1 | 2 | 3 | | 1 | 2 | 3 | | 1 | 2 | 3 |
| Air Force | | | | | | | | | | | |
| Size | 15 | 11 | C | | 14 | 11 | 11 | | 15 | 12 | 11 |
| Mode | 5 | 5 | o | | 5 | 5 | 5 | | 6 | 6 | 6 |
| Consensus | N | N | n | | N | N | N | | N | N | Y |
| Navy Pop. | | | s | | | | | | | | |
| Size | 9 | 9 | n | | 8 | 9 | 10 | | 9 | 9 | 10 |
| Mode | 5 | 5 | s | | 3 | 4 | 4 | | 5 | 6 | 6 |
| Consensus | N | Y | u | | N | N | N | | N | N | Y |
| Wilcoxon | 91.5 | 89.5 | s | | 65 | 72 | 86 | | 115 | 100 | 101 |
| Combined | | | F | | | | | | | | |
| Allowed | Y | Y | o | | N | Y | Y | | Y | Y | Y |
| Mode | 5 | 5 | n | | 5 | 4 | 4 | | 6 | 6 | 6 |
| Consensus | N | Y | d | | N | N | N | | N | N | Y |

| | Ques. #38 | | | Ques. #46 | | | Ques. #47 | | |
|-----------|-----------|------|-----|-----------|------|---|-----------|----|------|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 13 | 12 | C | 15 | 12 | 11 |
| Mode | 7 | 7 | 6/7 | 5 | 5 | O | 5 | 5 | 5 |
| Consensus | N | N | N | N | Y | n | N | N | N |
| Navy Pop. | | | | | | s | | | |
| Size | 9 | 9 | 10 | 9 | 9 | e | 9 | 9 | 10 |
| Mode | 7 | 7 | 7 | 5/6 | 5 | s | 3/5/6/7 | 5 | 5 |
| Consensus | N | N | N | N | N | u | N | N | Y |
| Wilcoxon | 121 | 89.5 | 114 | 88 | 96.5 | s | 133 | 96 | 87.5 |
| Combined | | | | | | F | | | |
| Allowed | Y | Y | Y | Y | Y | o | Y | Y | Y |
| Mode | 7 | 7 | 7 | 5 | 5 | n | 5 | 5 | 5 |
| Consensus | N | N | N | N | Y | d | N | N | N |

| | Ques. #48 | | | Ques. #49 | | | Ques. #50 | | |
|-----------|-----------|------|-----|-----------|------|-------|-----------|------|------|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 8 | 10 | 9 | 9 | 10 |
| Mode | 5 | 5 | 5 | 3/5/6 | 5 | 5 | 5 | 4/5 | 5 |
| Consensus | N | Y | Y | N | N | Y | N | N | N |
| Wilcoxon | 116.5 | 98.5 | 118 | 114 | 80.5 | 113.5 | 85.5 | 63.5 | 92.5 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | N | Y |
| Mode | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | N |

| | Ques. #51 | | | Ques. #52 | | | Ques. #53 | | |
|-----------|-----------|----|-----|-----------|------|-------|-----------|----|-----|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 14 | 12 | 11 |
| Mode | 3 | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 5 |
| Consensus | N | N | Y | N | N | N | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 8 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 6 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | Y | N | N | Y |
| Wilcoxon | 93.5 | 82 | 102 | 109.5 | 97.5 | 113.5 | 112.5 | 96 | 110 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 3/5 | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | Y |

| | Ques. #54 | | | Ques. #55 | | | Ques. #56 | | |
|-----------|-----------|-----|-------|-----------|-----|-----|-----------|-----|-------|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 14 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 4 | 4 | 4 | 7 | 6/7 | 6 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 8 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 4 | 4 | 4 | 5/6 | 6 | 6 | 5 | 5 | 5 |
| Consensus | N | N | N | N | Y | Y | N | N | Y |
| Wilcoxon | 79 | 109 | 124.5 | 88 | 75 | 101 | 117 | 107 | 101.5 |
| Combined | | | | | | | | | |
| Allowed | N | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 4 | 4 | 4 | 7 | 6 | 6 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | Y | N | N | N |

| | Ques. #57 | | | Ques. #58 | | | Ques. #67 | | |
|-----------|-----------|----|------|-----------|------|-------|-----------|------|----|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | Y | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 9 |
| Mode | 5 | 5 | 5 | 6 | 6 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | Y | N | N | N |
| Wilcoxon | 91.5 | 78 | 89.5 | 113 | 95.5 | 105.5 | 94 | 81.5 | 89 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | Y | N | N | N |

| | Ques. #69 | | | Ques. #73 | | |
|-----------|-----------|-----|-----|-----------|------|-----|
| | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 5 | 4 | 4 | 6 | 6 | 6 |
| Consensus | N | N | Y | N | N | Y |
| Navy Pop. | | | | | | |
| Size | 8 | 9 | 10 | 9 | 9 | 10 |
| Mode | 4 | 4 | 4 | 6 | 6 | 6 |
| Consensus | N | N | Y | N | N | Y |
| Wilcoxon | 118 | 103 | 118 | 98.5 | 88.5 | 101 |
| Combined | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y |
| Mode | 4/5 | 4 | 4 | 6 | 6 | 6 |
| Consensus | N | N | Y | N | N | Y |

Results for Survey Questions Related to Investigative Question #4

| | Ques. #2 | | | Ques. #8 | | | Ques. #39 | | |
|-----------|----------|------|-----|----------|------|-----|-----------|----|-------|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 7 | 6 | 6 | 2/3/5/6 | 5 | 5 | 6 | 6 | 5 |
| Consensus | N | N | N | N | N | Y | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 6 | 6 | 6 | 5 | 5 | 5 | 5/6 | 5 | 5 |
| Consensus | N | N | Y | N | N | N | N | N | N |
| Wilcoxon | 98.5 | 88.5 | 112 | 142 | 92.5 | 105 | 94 | 85 | 104.5 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 6 | 6 | 6 | 5 | 5 | 5 | 6 | 5 | 5 |
| Consensus | N | N | Y | N | N | N | N | N | N |

| | Ques. #42 | | | Ques. #43 | | | Ques. #44 | | |
|-----------|-----------|-------|-----|-----------|------|------|-----------|------|-----|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 3 | 5 | 5 | 7 | 6 | 6 | 7 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 6 |
| Consensus | N | N | Y | N | N | Y | N | N | Y |
| Wilcoxon | 130.5 | 119.5 | 123 | 78.5 | 89.5 | 91.5 | 97.5 | 93.5 | 104 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | Y | N | N | Y |

| Ques. #45 | | | Ques. #59 | | | Ques. #60 | | | C o n s e n s u s |
|-----------|------|------|-----------|------|------|-----------|----|------|---|
| Round | | | Round | | | Round | | | |
| 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | |
| Mode | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 | |
| Consensus | N | N | N | N | N | Y | N | Y | |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | |
| Mode | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 | |
| Consensus | N | N | Y | N | N | Y | N | N | |
| Wilcoxon | 89.5 | 85.5 | 98.5 | 96.5 | 89.5 | 108.5 | 97 | 97.5 | F o u n d |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | |
| Mode | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 | |
| Consensus | N | N | N | N | N | Y | N | Y | |

| | Ques. #61 | | | Ques. #62 | | | Ques. #63 | | |
|-----------|-----------|----|-----|-----------|------|---|-----------|----|-----|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | C | 15 | 12 | 11 |
| Mode | 6 | 6 | 6 | 6 | 6 | o | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | n | N | Y | Y |
| | | | | | | s | | | |
| Navy Pop. | | | | | | e | | | |
| Size | 9 | 9 | 10 | 9 | 9 | n | 9 | 9 | 10 |
| Mode | 5 | 6 | 6 | 6 | 6 | s | 6 | 6 | 6 |
| Consensus | N | N | Y | N | Y | u | N | N | Y |
| | | | | | | s | | | |
| Wilcoxon | 91 | 85 | 102 | 91.5 | 98.5 | | 92.5 | 68 | 105 |
| | | | | | | F | | | |
| Combined | | | | | | o | | | |
| Allowed | Y | Y | Y | Y | Y | u | Y | N | Y |
| Mode | 6 | 6 | 6 | 6 | 6 | n | 6 | 6 | 6 |
| Consensus | N | N | Y | N | Y | d | N | N | Y |

| Ques. #64 | | | Ques. #65 | | | Ques. #66 | | | |
|-----------|----|----|-----------|------|-----|-----------|------|------|----|
| Round | | | Round | | | Round | | | |
| 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | C | 15 | 12 | 11 | 15 | 11 | 10 |
| Mode | 5 | 5 | o | 5 | 5 | 5 | 5 | 6 | 6 |
| Consensus | N | Y | n | N | N | N | N | Y | Y |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | s | 9 | 9 | 10 | 9 | 9 | 9 |
| Mode | 5 | 5 | s | 5 | 5 | 5 | 5 | 5/6 | 6 |
| Consensus | N | N | u | N | N | N | N | N | N |
| Wilcoxon | | | | | | | | | |
| 111 | 82 | F | 99 | 94.5 | 108 | 114 | 87.5 | 75.5 | |
| Combined | | | | | | | | | |
| Allowed | Y | Y | o | Y | Y | Y | Y | Y | Y |
| Mode | 5 | 5 | u | 5 | 5 | 5 | 5/7 | 6 | 6 |
| Consensus | N | Y | d | N | N | N | N | N | N |

| | Ques. #74 | | | Ques. #75 | | | Ques. #76 | | |
|-----------|-----------|-----|-----|-----------|-------|-------|-----------|-----|-----|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 5 | 5 | 5 | 4 | 4/5/6 | 5 | 4 | 4 | 4 |
| Consensus | N | N | N | N | N | N | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 8 | 9 | 10 | 9 | 8 | 10 |
| Mode | 5/6/7 | 6 | 6 | 5/6 | 5 | 5 | 6 | 5 | 4 |
| Consensus | N | N | N | N | N | Y | N | N | N |
| Wilcoxon | 136.5 | 113 | 113 | 108 | 111 | 109.5 | 123 | 100 | 123 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 5 | 5 | 6 | 5/6 | 5 | 5 | 4 | 4 | 4 |
| Consensus | N | N | N | N | N | Y | N | N | N |

| | Ques. #77 | | | Ques. #78 | | | Ques. #79 | | |
|-----------|-----------|-------|-----|-----------|----|-------|-----------|----|-----|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 5 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 |
| Consensus | N | N | Y | N | N | Y | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Consensus | N | N | Y | N | N | N | N | Y | Y |
| Wilcoxon | 129 | 112.5 | 119 | 115 | 89 | 104.5 | 104.5 | 98 | 102 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Consensus | N | N | Y | N | N | N | N | N | Y |

| Ques. #80 | | | |
|-----------|-------|-----|-----|
| Round | | | |
| | 1 | 2 | 3 |
| Air Force | | | |
| Size | 15 | 12 | 11 |
| Mode | 4 | 4 | 5 |
| Consensus | N | N | N |
| Navy Pop. | | | |
| Size | 9 | 9 | 10 |
| Mode | 5 | 5 | 5 |
| Consensus | N | N | N |
| Wilcoxon | 109.5 | 102 | 112 |
| Combined | | | |
| Allowed | Y | Y | Y |
| Mode | 4 | 4 | 4 |
| Consensus | N | N | N |

Results for Survey Questions Related to Investigative Question #5

| | Ques. #9 Round | | | Ques. #11 Round | | | Ques. #12 Round | | |
|-----------|-------------------|------|-------|--------------------|----|-------|--------------------|----|-----|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 1/4 | 3/4 | 3 | 5 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | Y | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 8 | 8 | 10 |
| Mode | 3 | 3 | 3 | 4 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | Y | Y |
| Wilcoxon | 142 | 96.5 | 114.5 | 98 | 76 | 104.5 | 87.5 | 95 | 114 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 3 | 3 | 3 | 5 | 5 | 5 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | N |

| | Ques. #13 Round | | | Ques. #14 Round | | | Ques. #16 Round | | |
|-----------|--------------------|------|-------|--------------------|-------|-------|--------------------|---|---|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | C | C |
| Mode | 2 | 2 | 2 | 3 | 2 | 2 | 7 | o | o |
| Consensus | N | N | N | N | N | N | Y | n | n |
| Navy Pop. | | | | | | | | s | s |
| Size | 9 | 8 | 10 | 9 | 9 | 10 | 9 | e | e |
| Mode | 3 | 3 | 3 | 2 | 2 | 2 | 7 | n | n |
| Consensus | N | N | N | N | N | N | Y | s | s |
| Wilcoxon | 120.5 | 91.5 | 132.5 | 134.5 | 112.5 | 123.5 | 111.5 | u | u |
| Combined | | | | | | | | s | s |
| Allowed | Y | Y | Y | Y | Y | Y | Y | F | F |
| Mode | 3 | 3 | 3 | 2/3 | 2 | 2 | 7 | o | o |
| Consensus | N | N | N | N | N | N | Y | u | u |

| | Ques. #40 | | | Ques. #41 | | | Ques. #68 | | |
|-----------|-----------|------|----|-----------|------|------|-----------|------|----|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 14 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 5 | 5 | 5 | 6 | 6 | 6 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 8 | 9 | 9 | 9 | 9 |
| Mode | 4 | 4 | 5 | 6 | 6 | 6 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | N |
| Wilcoxon | 80.5 | 77.5 | 88 | 103.5 | 69.5 | 70.5 | 97.5 | 91.5 | 98 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | N | N | Y | Y | Y |
| Mode | 5 | 5 | 5 | 6 | 6 | 6 | 5 | 5 | 5 |
| Consensus | N | N | N | N | N | N | N | N | Y |

| Ques. #70 | | | Ques. #71 | | | Ques. #72 | | | |
|-----------|-----|----|-----------|------|----|-----------|-----|----|-----|
| Round | | | Round | | | Round | | | |
| 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| Air Force | | | | | | | | | |
| Size | 14 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | 11 |
| Mode | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | Y | N | N | Y |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 9 | 9 | 10 | 9 | 9 | 10 |
| Mode | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | Y |
| Wilcoxon | 101 | 92 | 105 | 88.5 | 83 | 87 | 132 | 94 | 100 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Mode | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 |
| Consensus | N | N | N | N | N | N | N | N | Y |

| | Ques. #81 | | | Ques. #82 | | | Ques. #83 | | |
|-----------|-----------|-----|-----|-----------|------|-----|-----------|------|-------|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 11 | 10 | 15 | 12 | 11 |
| Mode | 6 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 3 |
| Consensus | N | N | N | N | N | N | N | N | N |
| Navy Pop. | | | | | | | | | |
| Size | 9 | 9 | 10 | 8 | 8 | 10 | 8 | 8 | 10 |
| Mode | 6 | 5/6 | 5 | 5 | 5 | 5 | 2 | 3 | 3 |
| Consensus | N | N | Y | N | N | Y | N | N | N |
| Wilcoxon | 114 | 108 | 124 | 92 | 70.5 | 102 | 78.5 | 73.5 | 116.5 |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | N | Y | N | Y | Y |
| Mode | 6 | 5 | 5 | 6 | 5 | 5 | 5 | 3 | 3 |
| Consensus | N | N | Y | N | N | Y | N | N | N |

| | Ques. #84 | | | Ques. #85 | | | Ques. #86 | | |
|-----------|-----------|----|-----|-----------|------|-----|-----------|----|--|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | 11 | 15 | 12 | C o n s e n s u s F o u n d |
| Mode | 3 | 3 | 3 | 5 | 5 | 5 | 3 | 3 | |
| Consensus | N | N | N | N | N | Y | N | N | |
| Navy Pop. | | | | | | | | | |
| Size | 8 | 8 | 10 | 8 | 7 | 10 | 8 | 8 | |
| Mode | 3 | 3 | 3 | 5 | 4 | 5 | 3 | 3 | |
| Consensus | N | Y | Y | N | N | Y | N | Y | |
| Wilcoxon | 95.5 | 88 | 130 | 91.5 | 59.5 | 110 | 88 | 85 | |
| Combined | | | | | | | | | |
| Allowed | Y | Y | Y | Y | N | Y | Y | Y | |
| Mode | 3 | 3 | 3 | 5 | 5 | 5 | 3 | 3 | |
| Consensus | N | N | N | N | N | Y | N | Y | |

| Ques. #87 | | | Ques. #88 | | | Ques. #89 | | | |
|-----------|-----|----|-----------|-----|-------|-----------|-----|----|----|
| Round | | | Round | | | Round | | | |
| 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | C | 15 | 12 | C | 15 | 12 | 11 |
| Mode | 4 | 4 | o | 4 | 4 | o | 3 | 3 | 3 |
| Consensus | N | N | n | N | Y | n | N | N | Y |
| | | | s | | | | | | |
| | | | e | | | | | | |
| Navy Pop. | | | | | | | | | |
| Size | 8 | 8 | n | 8 | 8 | n | 9 | 9 | 10 |
| Mode | 4 | 4 | s | 6 | 4 | s | 3 | 3 | 3 |
| Consensus | N | Y | u | N | N | u | N | N | N |
| | | | s | | | | | | |
| | | | F | | | | | | |
| Wilcoxon | 101 | 83 | 125.5 | 112 | 111.5 | 100.5 | 130 | | |
| | | | o | | | | | | |
| Combined | | | | | | | | | |
| Allowed | Y | Y | u | Y | Y | u | Y | Y | Y |
| Mode | 4 | 4 | n | 4 | 4 | n | 3 | 3 | 3 |
| Consensus | N | Y | d | N | Y | d | N | N | N |

| | Ques. #90 | | | Ques. #91 | | | Ques. #92 | | |
|-----------|-----------|----|-----|-----------|----|---|-----------|------|---|
| | Round | | | Round | | | Round | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Air Force | | | | | | | | | |
| Size | 15 | 12 | 11 | 15 | 12 | C | 14 | 11 | C |
| Mode | 2 | 3 | 3 | 5 | 5 | o | 4 | 4 | o |
| Consensus | N | N | N | N | Y | n | N | Y | n |
| | | | | | | s | | | s |
| Navy Pop. | | | | | | e | | | e |
| Size | 9 | 9 | 10 | 9 | 9 | n | 8 | 8 | n |
| Mode | 3 | 3 | 3 | 5 | 5 | s | 4 | 4 | s |
| Consensus | N | N | N | N | N | u | N | N | u |
| | | | | | | s | | | s |
| Wilcoxon | 113 | 89 | 109 | 97 | 92 | | 93 | 84.5 | |
| | | | | | | F | | | F |
| Combined | | | | | | o | | | o |
| Allowed | Y | Y | Y | Y | Y | u | Y | Y | u |
| Mode | 3 | 3 | 3 | 5 | 5 | n | 4 | 4 | n |
| Consensus | N | N | N | N | Y | d | N | Y | d |

Appendix O: Spearman Correlation Coefficients Results for Survey Questions

Results for Survey Questions Related to Investigative Question #1

| | 1 | Round 2 | 3 |
|-------------------------------------|-------|------------|-------|
| Cutoff if Spearmen Score Less than: | .409 | .438 | .438 |
| Ques. 3 Correlated with Ques. 6 | .4690 | .5046 | ---- |
| Ques. 3 Correlated with Ques. 4 | ---- | ---- | .5325 |

Results for Survey Questions Related to Investigative Question #2

| | 1 | Round 2 | 3 |
|-------------------------------------|-------|------------|-------|
| Cutoff if Spearmen Score Less than: | .409 | .438 | .438 |
| Ques. 10A Correlated with Ques. 10C | .6346 | ----- | .4951 |
| Ques. 10A Correlated with Ques. 10D | ----- | ----- | .4794 |
| Ques. 10A Correlated with Ques. 10E | .6283 | ----- | ----- |
| Ques. 10A Correlated with Ques. 10F | .7256 | ----- | ----- |
| Ques. 10A Correlated with Ques. 10G | .8082 | ----- | .5969 |
| Ques. 10A Correlated with Ques. 10H | .6566 | ----- | .4448 |
| Ques. 10B Correlated with Ques. 10C | ----- | .5048 | .6327 |
| Ques. 10B Correlated with Ques. 10D | .4280 | .6195 | .6157 |
| Ques. 10B Correlated with Ques. 10F | .5000 | ----- | ----- |
| Ques. 10B Correlated with Ques. 10G | .4653 | ----- | ----- |
| Ques. 10B Correlated with Ques. 10H | ----- | .4902 | .5607 |
| Ques. 10B Correlated with Ques. 15 | ----- | .4684 | ----- |
| Ques. 10C Correlated with Ques. 10D | .6446 | .7981 | .6831 |
| Ques. 10C Correlated with Ques. 10E | .5235 | ----- | ----- |
| Ques. 10C Correlated with Ques. 10F | .7720 | ----- | ----- |
| Ques. 10C Correlated with Ques. 10G | .7539 | ----- | .4723 |
| Ques. 10C Correlated with Ques. 10H | .7403 | ----- | .4829 |
| Ques. 10C Correlated with Ques. 15 | ----- | .5131 | ----- |
| Ques. 10D Correlated with Ques. 10E | ----- | ----- | .5069 |
| Ques. 10D Correlated with Ques. 10F | .6630 | ----- | ----- |
| Ques. 10D Correlated with Ques. 10G | .5820 | ----- | .4738 |
| Ques. 10D Correlated with Ques. 10H | .5952 | .5143 | ----- |
| Ques. 10D Correlated with Ques. 15 | ----- | .6707 | ----- |
| Ques. 10E Correlated with Ques. 10G | .4744 | ----- | .4519 |
| Ques. 10F Correlated with Ques. 10G | .9150 | .6215 | .4723 |
| Ques. 10F Correlated with Ques. 10H | .9067 | .5569 | ----- |
| Ques. 10G Correlated with Ques. 10H | .8467 | ----- | ----- |
| Ques. 10H Correlated with Ques. 15 | ----- | .5997 | ----- |

Results for Survey Questions Related to Investigative
Question #3

| | | Round | | |
|-------------------------------------|--------------------------|-------|-------|-------|
| | | 1 | 2 | 3 |
| Cutoff if Spearman Score Less than: | | .409 | .438 | .438 |
| Ques. 17 | Correlated with Ques. 19 | ----- | ----- | .5410 |
| Ques. 17 | Correlated with Ques. 22 | .4614 | ----- | .6376 |
| Ques. 17 | Correlated with Ques. 23 | .5135 | ----- | ----- |
| Ques. 17 | Correlated with Ques. 27 | ----- | ----- | .4910 |
| Ques. 17 | Correlated with Ques. 33 | ----- | ----- | .4741 |
| Ques. 17 | Correlated with Ques. 37 | ----- | .4424 | .5783 |
| Ques. 17 | Correlated with Ques. 38 | ----- | .6095 | .7320 |
| Ques. 17 | Correlated with Ques. 47 | .4304 | ----- | ----- |
| Ques. 17 | Correlated with Ques. 51 | .5683 | ----- | ----- |
| Ques. 17 | Correlated with Ques. 52 | .6179 | ----- | ----- |
| Ques. 17 | Correlated with Ques. 58 | ----- | .5131 | .6263 |
| Ques. 18 | Correlated with Ques. 25 | ----- | -.447 | ----- |
| Ques. 18 | Correlated with Ques. 28 | ----- | ----- | .5986 |
| Ques. 18 | Correlated with Ques. 48 | .4190 | ----- | ----- |
| Ques. 18 | Correlated with Ques. 55 | .5829 | ----- | ----- |
| Ques. 18 | Correlated with Ques. 56 | ----- | .4660 | ----- |
| Ques. 18 | Correlated with Ques. 73 | ----- | ----- | .4531 |
| Ques. 19 | Correlated with Ques. 20 | ----- | -.462 | ----- |
| Ques. 19 | Correlated with Ques. 22 | ----- | .6650 | .5784 |
| Ques. 19 | Correlated with Ques. 27 | ----- | ----- | .5424 |
| Ques. 19 | Correlated with Ques. 32 | ----- | ----- | .5327 |
| Ques. 19 | Correlated with Ques. 47 | ----- | .4960 | ----- |
| Ques. 19 | Correlated with Ques. 49 | -.428 | ----- | ----- |
| Ques. 19 | Correlated with Ques. 54 | ----- | -.485 | ----- |
| Ques. 20 | Correlated with Ques. 24 | ----- | ----- | -.529 |
| Ques. 20 | Correlated with Ques. 27 | ----- | ----- | -.614 |
| Ques. 20 | Correlated with Ques. 28 | ----- | -.449 | ----- |
| Ques. 20 | Correlated with Ques. 31 | ----- | -.602 | ----- |
| Ques. 20 | Correlated with Ques. 47 | -.441 | ----- | ----- |
| Ques. 20 | Correlated with Ques. 57 | ----- | .4765 | ----- |
| Ques. 21 | Correlated with Ques. 22 | .4561 | ----- | .6722 |
| Ques. 21 | Correlated with Ques. 23 | ----- | ----- | .7396 |
| Ques. 21 | Correlated with Ques. 25 | ----- | ----- | -.502 |
| Ques. 21 | Correlated with Ques. 26 | ----- | ----- | -.454 |
| Ques. 21 | Correlated with Ques. 29 | ----- | ----- | .5555 |
| Ques. 21 | Correlated with Ques. 32 | ----- | .4749 | ----- |
| Ques. 21 | Correlated with Ques. 50 | ----- | .5005 | .5122 |
| Ques. 21 | Correlated with Ques. 51 | ----- | .5566 | ----- |
| Ques. 21 | Correlated with Ques. 52 | ----- | ----- | .4783 |
| Ques. 21 | Correlated with Ques. 57 | ----- | .4765 | .7011 |
| Ques. 22 | Correlated with Ques. 29 | .4686 | .4550 | ----- |
| Ques. 22 | Correlated with Ques. 31 | .4614 | ----- | ----- |
| Ques. 22 | Correlated with Ques. 38 | ----- | .6385 | ----- |
| Ques. 22 | Correlated with Ques. 49 | -.504 | ----- | ----- |
| Ques. 22 | Correlated with Ques. 54 | ----- | -.456 | ----- |
| Ques. 22 | Correlated with Ques. 57 | ----- | ----- | .5244 |
| Ques. 23 | Correlated with Ques. 25 | ----- | ----- | -.547 |

| | | | | |
|----------|--------------------------|-------|-------|-------|
| Ques. 23 | Correlated with Ques. 31 | .5135 | ----- | ----- |
| Ques. 23 | Correlated with Ques. 47 | ----- | ----- | .4909 |
| Ques. 23 | Correlated with Ques. 50 | .5987 | .6201 | .4652 |
| Ques. 23 | Correlated with Ques. 57 | ----- | .4824 | .5244 |
| Ques. 24 | Correlated with Ques. 27 | ----- | .4948 | ----- |
| Ques. 24 | Correlated with Ques. 30 | ----- | ----- | -.565 |
| Ques. 24 | Correlated with Ques. 33 | -.425 | ----- | ----- |
| Ques. 24 | Correlated with Ques. 29 | ----- | -.442 | ----- |
| Ques. 24 | Correlated with Ques. 31 | ----- | .4859 | ----- |
| Ques. 24 | Correlated with Ques. 49 | ----- | ----- | -.480 |
| Ques. 24 | Correlated with Ques. 52 | ----- | ----- | -.665 |
| Ques. 25 | Correlated with Ques. 57 | ----- | ----- | -.588 |
| Ques. 26 | Correlated with Ques. 27 | ----- | ----- | -.515 |
| Ques. 26 | Correlated with Ques. 29 | ----- | ----- | -.542 |
| Ques. 26 | Correlated with Ques. 51 | -.533 | ----- | ----- |
| Ques. 26 | Correlated with Ques. 52 | -.483 | ----- | ----- |
| Ques. 26 | Correlated with Ques. 55 | ----- | ----- | -.533 |
| Ques. 27 | Correlated with Ques. 34 | -.499 | ----- | ----- |
| Ques. 27 | Correlated with Ques. 48 | ----- | ----- | .4690 |
| Ques. 28 | Correlated with Ques. 31 | .6767 | ----- | ----- |
| Ques. 28 | Correlated with Ques. 32 | -.451 | ----- | ----- |
| Ques. 28 | Correlated with Ques. 34 | .4887 | ----- | ----- |
| Ques. 28 | Correlated with Ques. 37 | .4318 | ----- | ----- |
| Ques. 28 | Correlated with Ques. 47 | ----- | .4471 | ----- |
| Ques. 28 | Correlated with Ques. 69 | ----- | ----- | -.441 |
| Ques. 28 | Correlated with Ques. 73 | ----- | .5547 | .4675 |
| Ques. 29 | Correlated with Ques. 33 | ----- | .5498 | ----- |
| Ques. 29 | Correlated with Ques. 35 | ----- | .4826 | ----- |
| Ques. 29 | Correlated with Ques. 37 | .4249 | ----- | ----- |
| Ques. 29 | Correlated with Ques. 46 | ----- | .5632 | ----- |
| Ques. 29 | Correlated with Ques. 52 | ----- | ----- | .5517 |
| Ques. 29 | Correlated with Ques. 55 | ----- | ----- | .4490 |
| Ques. 29 | Correlated with Ques. 56 | ----- | .4546 | ----- |
| Ques. 29 | Correlated with Ques. 57 | ----- | ----- | .5193 |
| Ques. 30 | Correlated with Ques. 31 | .5136 | ----- | ----- |
| Ques. 30 | Correlated with Ques. 34 | .5849 | .5703 | ----- |
| Ques. 30 | Correlated with Ques. 49 | ----- | .6952 | .7344 |
| Ques. 30 | Correlated with Ques. 55 | ----- | ----- | .5210 |
| Ques. 30 | Correlated with Ques. 69 | ----- | .4731 | ----- |
| Ques. 31 | Correlated with Ques. 49 | ----- | ----- | -.444 |
| Ques. 31 | Correlated with Ques. 46 | .4520 | ----- | ----- |
| Ques. 31 | Correlated with Ques. 53 | ----- | ----- | .5123 |
| Ques. 32 | Correlated with Ques. 35 | .4173 | ----- | ----- |
| Ques. 32 | Correlated with Ques. 50 | ----- | .7546 | .6343 |
| Ques. 32 | Correlated with Ques. 69 | .4720 | ----- | ----- |
| Ques. 33 | Correlated with Ques. 34 | ----- | .4554 | ----- |
| Ques. 33 | Correlated with Ques. 38 | .4621 | ----- | ----- |
| Ques. 33 | Correlated with Ques. 47 | .4575 | ----- | ----- |
| Ques. 33 | Correlated with Ques. 49 | ----- | ----- | .5559 |
| Ques. 33 | Correlated with Ques. 52 | ----- | ----- | .5501 |
| Ques. 33 | Correlated with Ques. 54 | ----- | -.476 | -.465 |
| Ques. 33 | Correlated with Ques. 55 | ----- | ----- | .5606 |
| Ques. 33 | Correlated with Ques. 56 | .6475 | .5538 | .5792 |
| Ques. 33 | Correlated with Ques. 58 | ----- | ----- | .7518 |

| | | | | |
|----------|--------------------------|-------|-------|-------|
| Ques. 33 | Correlated with Ques. 67 | ----- | .5466 | .4719 |
| Ques. 33 | Correlated with Ques. 74 | .4778 | ----- | ----- |
| Ques. 34 | Correlated with Ques. 49 | ----- | ----- | .5421 |
| Ques. 34 | Correlated with Ques. 56 | ----- | .4853 | ----- |
| Ques. 34 | Correlated with Ques. 67 | ----- | .6129 | ----- |
| Ques. 34 | Correlated with Ques. 73 | ----- | .5886 | ----- |
| Ques. 35 | Correlated with Ques. 36 | .5239 | ----- | ----- |
| Ques. 35 | Correlated with Ques. 48 | ----- | .6556 | ----- |
| Ques. 35 | Correlated with Ques. 53 | .5469 | ----- | ----- |
| Ques. 35 | Correlated with Ques. 58 | .6595 | ----- | ----- |
| Ques. 35 | Correlated with Ques. 73 | ----- | .5101 | ----- |
| Ques. 36 | Correlated with Ques. 47 | ----- | ----- | .5488 |
| Ques. 37 | Correlated with Ques. 53 | ----- | -.446 | ----- |
| Ques. 37 | Correlated with Ques. 58 | ----- | .4517 | .5821 |
| Ques. 37 | Correlated with Ques. 69 | -.425 | -.530 | -.832 |
| Ques. 38 | Correlated with Ques. 51 | ----- | .4988 | ----- |
| Ques. 38 | Correlated with Ques. 57 | ----- | .4616 | ----- |
| Ques. 46 | Correlated with Ques. 47 | ----- | .6590 | ----- |
| Ques. 46 | Correlated with Ques. 73 | ----- | .6659 | ----- |
| Ques. 47 | Correlated with Ques. 48 | .4920 | ----- | ----- |
| Ques. 47 | Correlated with Ques. 50 | ----- | ----- | .6284 |
| Ques. 47 | Correlated with Ques. 51 | .4781 | ----- | .5196 |
| Ques. 47 | Correlated with Ques. 54 | ----- | -.440 | ----- |
| Ques. 47 | Correlated with Ques. 56 | .4770 | .4545 | ----- |
| Ques. 47 | Correlated with Ques. 73 | ----- | .7097 | .5981 |
| Ques. 48 | Correlated with Ques. 49 | .4305 | ----- | ----- |
| Ques. 48 | Correlated with Ques. 56 | .4636 | .4488 | ----- |
| Ques. 48 | Correlated with Ques. 73 | ----- | .4652 | .4332 |
| Ques. 49 | Correlated with Ques. 51 | .4619 | ----- | ----- |
| Ques. 49 | Correlated with Ques. 52 | .4294 | .5298 | ----- |
| Ques. 49 | Correlated with Ques. 55 | ----- | ----- | .5861 |
| Ques. 49 | Correlated with Ques. 56 | ----- | ----- | .6297 |
| Ques. 49 | Correlated with Ques. 58 | ----- | ----- | .4419 |
| Ques. 49 | Correlated with Ques. 67 | ----- | ----- | .4562 |
| Ques. 50 | Correlated with Ques. 51 | .4492 | .4352 | .6794 |
| Ques. 50 | Correlated with Ques. 57 | ----- | .4789 | ----- |
| Ques. 51 | Correlated with Ques. 52 | .5874 | ----- | ----- |
| Ques. 51 | Correlated with Ques. 57 | ----- | .4455 | ----- |
| Ques. 52 | Correlated with Ques. 54 | ----- | ----- | -.626 |
| Ques. 52 | Correlated with Ques. 58 | ----- | ----- | .4540 |
| Ques. 53 | Correlated with Ques. 58 | ----- | ----- | -.507 |
| Ques. 54 | Correlated with Ques. 56 | -.425 | ----- | ----- |
| Ques. 55 | Correlated with Ques. 56 | ----- | ----- | .6790 |
| Ques. 55 | Correlated with Ques. 58 | ----- | ----- | .5020 |
| Ques. 55 | Correlated with Ques. 67 | ----- | ----- | .4452 |
| Ques. 55 | Correlated with Ques. 73 | ----- | .6095 | .5916 |
| Ques. 56 | Correlated with Ques. 67 | ----- | .5992 | .7158 |
| Ques. 56 | Correlated with Ques. 73 | ----- | .4874 | .4641 |
| Ques. 67 | Correlated with Ques. 73 | ----- | .5241 | ----- |

Results for Survey Questions Related to Investigative
Question #4

| | | | | | Round | | |
|-------------------------------------|-----------------|----------|-------|-------|-------|-------|-------|
| | | | | | 1 | 2 | 3 |
| Cutoff if Spearman Score Less than: | | | | | .409 | .438 | .438 |
| Ques. 02 | Correlated with | Ques. 65 | ----- | ----- | ----- | ----- | -.536 |
| Ques. 02 | Correlated with | Ques. 78 | .4689 | ----- | ----- | ----- | ----- |
| Ques. 08 | Correlated with | Ques. 65 | ----- | .5162 | .4514 | ----- | ----- |
| Ques. 39 | Correlated with | Ques. 78 | ----- | ----- | .5669 | ----- | ----- |
| Ques. 42 | Correlated with | Ques. 75 | ----- | .4454 | ----- | ----- | ----- |
| Ques. 42 | Correlated with | Ques. 77 | ----- | .4831 | ----- | ----- | ----- |
| Ques. 43 | Correlated with | Ques. 44 | .5792 | ----- | ----- | ----- | ----- |
| Ques. 43 | Correlated with | Ques. 45 | .4420 | ----- | ----- | ----- | ----- |
| Ques. 43 | Correlated with | Ques. 63 | .5879 | .4887 | ----- | ----- | ----- |
| Ques. 44 | Correlated with | Ques. 59 | .4881 | .7793 | .6560 | ----- | ----- |
| Ques. 44 | Correlated with | Ques. 60 | .5307 | .4551 | .5791 | ----- | ----- |
| Ques. 44 | Correlated with | Ques. 61 | .4635 | .5191 | ----- | ----- | ----- |
| Ques. 44 | Correlated with | Ques. 62 | .6412 | .5988 | ----- | ----- | ----- |
| Ques. 44 | Correlated with | Ques. 66 | ----- | .4753 | ----- | ----- | ----- |
| Ques. 44 | Correlated with | Ques. 75 | .4373 | .5971 | .5748 | ----- | ----- |
| Ques. 44 | Correlated with | Ques. 79 | ----- | ----- | .7047 | ----- | ----- |
| Ques. 45 | Correlated with | Ques. 77 | ----- | ----- | -.520 | ----- | ----- |
| Ques. 45 | Correlated with | Ques. 79 | ----- | ----- | .5944 | ----- | ----- |
| Ques. 45 | Correlated with | Ques. 80 | ----- | .4385 | ----- | ----- | ----- |
| Ques. 59 | Correlated with | Ques. 60 | .8606 | .8071 | ----- | ----- | ----- |
| Ques. 59 | Correlated with | Ques. 61 | .8519 | .8058 | .5704 | ----- | ----- |
| Ques. 59 | Correlated with | Ques. 62 | .6523 | .7433 | ----- | ----- | ----- |
| Ques. 59 | Correlated with | Ques. 64 | ----- | .4712 | ----- | ----- | ----- |
| Ques. 59 | Correlated with | Ques. 66 | ----- | .4717 | ----- | ----- | ----- |
| Ques. 59 | Correlated with | Ques. 75 | ----- | .0362 | ----- | ----- | ----- |
| Ques. 59 | Correlated with | Ques. 79 | ----- | .4715 | .5483 | ----- | ----- |
| Ques. 60 | Correlated with | Ques. 61 | .8760 | .8416 | ----- | ----- | ----- |
| Ques. 60 | Correlated with | Ques. 62 | .7709 | .7223 | ----- | ----- | ----- |
| Ques. 60 | Correlated with | Ques. 64 | ----- | .4378 | ----- | ----- | ----- |
| Ques. 60 | Correlated with | Ques. 76 | ----- | .5049 | ----- | ----- | ----- |
| Ques. 60 | Correlated with | Ques. 77 | .4158 | ----- | ----- | ----- | ----- |
| Ques. 61 | Correlated with | Ques. 62 | .7616 | .7487 | ----- | ----- | ----- |
| Ques. 61 | Correlated with | Ques. 64 | ----- | .6455 | ----- | ----- | ----- |
| Ques. 61 | Correlated with | Ques. 66 | .4920 | ----- | ----- | ----- | ----- |
| Ques. 61 | Correlated with | Ques. 77 | .5181 | ----- | ----- | ----- | ----- |
| Ques. 61 | Correlated with | Ques. 79 | ----- | .5343 | .6774 | ----- | ----- |
| Ques. 63 | Correlated with | Ques. 74 | .5498 | ----- | .5225 | ----- | ----- |
| Ques. 63 | Correlated with | Ques. 76 | .5432 | ----- | ----- | ----- | ----- |
| Ques. 63 | Correlated with | Ques. 78 | .5114 | .4968 | ----- | ----- | ----- |
| Ques. 63 | Correlated with | Ques. 79 | .4158 | ----- | ----- | ----- | ----- |
| Ques. 64 | Correlated with | Ques. 66 | .4787 | ----- | ----- | ----- | ----- |
| Ques. 64 | Correlated with | Ques. 76 | ----- | .5219 | ----- | ----- | ----- |
| Ques. 64 | Correlated with | Ques. 79 | .5057 | ----- | ----- | ----- | ----- |
| Ques. 66 | Correlated with | Ques. 74 | .5830 | .5411 | ----- | ----- | ----- |
| Ques. 66 | Correlated with | Ques. 75 | .4231 | ----- | ----- | ----- | ----- |

| | | | | |
|----------|--------------------------|-------|-------|-------|
| Ques. 66 | Correlated with Ques. 76 | .5230 | ----- | ----- |
| Ques. 66 | Correlated with Ques. 77 | .6953 | .7041 | ----- |
| Ques. 66 | Correlated with Ques. 78 | .4997 | ----- | .6097 |
| Ques. 66 | Correlated with Ques. 79 | .5724 | ----- | ----- |
| Ques. 74 | Correlated with Ques. 75 | .4659 | ----- | ----- |
| Ques. 74 | Correlated with Ques. 76 | .6243 | .6531 | .5920 |
| Ques. 74 | Correlated with Ques. 77 | .5789 | .6435 | .5588 |
| Ques. 74 | Correlated with Ques. 78 | .5662 | .4567 | .4441 |
| Ques. 75 | Correlated with Ques. 76 | .6623 | .5877 | ----- |
| Ques. 75 | Correlated with Ques. 77 | .4189 | .4350 | ----- |
| Ques. 75 | Correlated with Ques. 79 | .7403 | .7387 | .7253 |
| Ques. 75 | Correlated with Ques. 80 | .5749 | ----- | ----- |
| Ques. 76 | Correlated with Ques. 77 | ----- | .4763 | .5262 |
| Ques. 76 | Correlated with Ques. 78 | .4352 | ----- | ----- |
| Ques. 76 | Correlated with Ques. 79 | .4343 | ----- | ----- |
| Ques. 77 | Correlated with Ques. 78 | .4813 | .4435 | ----- |
| Ques. 77 | Correlated with Ques. 79 | .5185 | ----- | ----- |
| Ques. 79 | Correlated with Ques. 80 | .5112 | ----- | ----- |

Results for Survey Questions Related to Investigative
Question #5

| | | Round | | |
|-------------------------------------|--------------------------|-------|-------|-------|
| | | 1 | 2 | 3 |
| Cutoff if Spearmen Score Less than: | | .409 | .438 | .438 |
| Ques. 09 | Correlated with Ques. 12 | ----- | ----- | .4719 |
| Ques. 09 | Correlated with Ques. 13 | ----- | ----- | .6477 |
| Ques. 09 | Correlated with Ques. 14 | ----- | ----- | .5160 |
| Ques. 09 | Correlated with Ques. 90 | ----- | ----- | .7519 |
| Ques. 09 | Correlated with Ques. 91 | ----- | .5950 | ----- |
| Ques. 11 | Correlated with Ques. 70 | .4844 | .6408 | ----- |
| Ques. 11 | Correlated with Ques. 83 | .4439 | ----- | ----- |
| Ques. 11 | Correlated with Ques. 85 | ----- | .4607 | ----- |
| Ques. 11 | Correlated with Ques. 88 | ----- | -.478 | ----- |
| Ques. 12 | Correlated with Ques. 13 | ----- | ----- | .5444 |
| Ques. 13 | Correlated with Ques. 14 | .6795 | .6478 | .6265 |
| Ques. 13 | Correlated with Ques. 71 | -.453 | -.485 | ----- |
| Ques. 13 | Correlated with Ques. 72 | -.515 | ----- | ----- |
| Ques. 13 | Correlated with Ques. 81 | ----- | .4950 | ----- |
| Ques. 13 | Correlated with Ques. 82 | ----- | .5008 | ----- |
| Ques. 13 | Correlated with Ques. 84 | .4192 | .4781 | .4914 |
| Ques. 13 | Correlated with Ques. 89 | .4239 | .4691 | .7423 |
| Ques. 13 | Correlated with Ques. 90 | .4149 | .6564 | .7378 |
| Ques. 40 | Correlated with Ques. 41 | ----- | ----- | .8093 |
| Ques. 40 | Correlated with Ques. 83 | ----- | ----- | -.449 |
| Ques. 40 | Correlated with Ques. 89 | .4545 | .4959 | ----- |
| Ques. 40 | Correlated with Ques. 91 | .7938 | ----- | ----- |
| Ques. 41 | Correlated with Ques. 71 | ----- | ----- | .6831 |
| Ques. 41 | Correlated with Ques. 72 | ----- | ----- | .6181 |
| Ques. 68 | Correlated with Ques. 70 | .5937 | ----- | ----- |
| Ques. 68 | Correlated with Ques. 81 | .4397 | ----- | ----- |
| Ques. 68 | Correlated with Ques. 82 | .5484 | ----- | ----- |
| Ques. 68 | Correlated with Ques. 83 | ----- | ----- | .5665 |
| Ques. 68 | Correlated with Ques. 84 | .4447 | ----- | ----- |
| Ques. 68 | Correlated with Ques. 85 | .6959 | ----- | ----- |
| Ques. 68 | Correlated with Ques. 86 | ----- | .4863 | ----- |
| Ques. 68 | Correlated with Ques. 87 | .5837 | .4787 | ----- |
| Ques. 68 | Correlated with Ques. 88 | ----- | -.493 | ----- |
| Ques. 70 | Correlated with Ques. 81 | .4534 | ----- | ----- |
| Ques. 70 | Correlated with Ques. 83 | ----- | .5006 | .5548 |
| Ques. 70 | Correlated with Ques. 85 | .6624 | ----- | ----- |
| Ques. 70 | Correlated with Ques. 86 | ----- | .4574 | ----- |
| Ques. 71 | Correlated with Ques. 72 | ----- | ----- | .5267 |
| Ques. 71 | Correlated with Ques. 89 | ----- | ----- | -.582 |
| Ques. 71 | Correlated with Ques. 90 | -.450 | ----- | ----- |
| Ques. 72 | Correlated with Ques. 85 | ----- | ----- | -.433 |
| Ques. 72 | Correlated with Ques. 86 | ----- | -.455 | ----- |
| Ques. 72 | Correlated with Ques. 89 | -.441 | -.573 | ----- |
| Ques. 81 | Correlated with Ques. 82 | .6952 | ----- | ----- |
| Ques. 81 | Correlated with Ques. 85 | .6125 | ----- | ----- |

| | | | | |
|----------|--------------------------|-------|-------|-------|
| Ques. 81 | Correlated with Ques. 86 | .6505 | ----- | ----- |
| Ques. 81 | Correlated with Ques. 87 | .4629 | ----- | ----- |
| Ques. 81 | Correlated with Ques. 90 | .7427 | .7479 | ----- |
| Ques. 81 | Correlated with Ques. 92 | .4963 | ----- | ----- |
| Ques. 82 | Correlated with Ques. 84 | .4173 | .4695 | .5529 |
| Ques. 82 | Correlated with Ques. 85 | .5359 | ----- | ----- |
| Ques. 82 | Correlated with Ques. 86 | .4475 | ----- | ----- |
| Ques. 82 | Correlated with Ques. 89 | .5101 | ----- | .6175 |
| Ques. 82 | Correlated with Ques. 90 | .8369 | .8009 | .5067 |
| Ques. 82 | Correlated with Ques. 92 | .4455 | ----- | ----- |
| Ques. 84 | Correlated with Ques. 85 | .5030 | ----- | ----- |
| Ques. 84 | Correlated with Ques. 86 | .4501 | ----- | ----- |
| Ques. 84 | Correlated with Ques. 87 | .6545 | ----- | ----- |
| Ques. 84 | Correlated with Ques. 90 | .4335 | ----- | ----- |
| Ques. 84 | Correlated with Ques. 92 | .5312 | ----- | ----- |
| Ques. 85 | Correlated with Ques. 86 | .6195 | ----- | ----- |
| Ques. 85 | Correlated with Ques. 87 | .4542 | ----- | ----- |
| Ques. 85 | Correlated with Ques. 89 | .4622 | ----- | ----- |
| Ques. 85 | Correlated with Ques. 90 | .4208 | ----- | ----- |
| Ques. 86 | Correlated with Ques. 87 | ----- | .6416 | ----- |
| Ques. 86 | Correlated with Ques. 90 | .5411 | ----- | ----- |
| Ques. 86 | Correlated with Ques. 91 | ----- | .6065 | ----- |
| Ques. 87 | Correlated with Ques. 89 | .4602 | ----- | ----- |
| Ques. 87 | Correlated with Ques. 91 | ----- | .5542 | ----- |
| Ques. 87 | Correlated with Ques. 92 | .6884 | ----- | ----- |
| Ques. 89 | Correlated with Ques. 90 | .6405 | .5746 | .6222 |
| Ques. 90 | Correlated with Ques. 91 | .4387 | ----- | ----- |
| Ques. 90 | Correlated with Ques. 92 | .4811 | ----- | ----- |

Bibliography

1. Blackstrom, Charles H. and Hursh - Ce'sai, Gerald. Survey Research (Second Edition). New York: John Wiley & Sons, 1981.
2. Brown, Bernice B. Delphi Process: A Methodology Used for the Elicitation of Opinions of Experts. RAND Report P-3925. Santa Monica CA: The RAND Corporation, September 1968.
3. Clarke, General Bruce C. (Ret.). "The Importance of Tactical Logistics", Army Logistics, 19:6 (January-February 1987).
4. Clem, Harold J. Maintenance Management in the Department of Defense. Washington: Industrial College of the Armed Forces, 1967.
5. Combat Support Doctrine. AFM 1-10. Washington: HQ USAF, 1 April 1987.
6. Coogan, Charles O. "Logistics and Logisticians of the Future", Logistics Spectrum, 20: 14-16 (Summer 1986).
7. Dalkey, Norman C. The Delphi Method: An Experimental Study of Group Opinion. RAND Report RM-5888-PR. Santa Monica CA: The RAND Corporation, June 1969.
8. Dalkey, Norman and Olaf Helmer. "An Experimental Application of the Delphi Method to the Use of Experts", Management Science, 9: 458-467 (1963).
9. Dillon, Lt Col William F., Jr. Strategic Logistics. U.S. Army War College, Carlisle Barracks PA, 1975.
10. Eccles, Rear Admiral Henry E. USN(Ret.). Logistics in the National Defense. Harrisburg: The Stackpole Company, 1959.
11. -----. Military Concepts and Philosophy. New York: Rutgers University Press, 1965.
12. -----. Military Power in a Free Society. Newport RI: Naval War College Press, 1979.
13. Emory, C. William. Business Research Methods (Third Edition). Homewood IL: Richard D. Irwin, Inc., 1985.

14. Freedman, Lawrence. Atlas of Global Strategy. New York: Facts on File, Inc., 1985.
15. Griffith, Samuel B., trans.. The Art of War, by Sun Tzu. Oxford: Oxford University Press, 1963.
16. Holley, Jr., Maj General I.B. (Ret). "The Role of Doctrine", Air Force Journal of Logistics, 10: 9 (Winter 1986).
17. Jablonsky, David. "Strategy and the Operation Level of War: Part I", Parameters, XVII: 65-76 (Spring 1987).
18. Joint Chief of Staff Publication 1. Dictionary of Military and Associated Terms. Washington: Government Printing Office, 1 April 1984.
19. Joint Logistics Review Board. Logistic Support in The Vietnam Era, Volume I A Summary Assessment with Major Findings and Recommendations. Washington: Government Printing Office, 1967.
20. Joint Staff Officer's Guide - 1986. Armed Forces Staff College, National Defense University.
21. Knapp, Maj George C. "Tactician, This is Logistician. Talk to me. Over.", Military Review, 66: 20-29 (February 1986).
22. Lider, Julian. Military Theory. New York: St. Martin's Press, 1983.
23. Magruder, Col Eugene Ross. Philosophy of Logistics. Air Force Institute of Technology (AU), Wright-Patterson AFB OH and Ohio State University Research Foundation, Dayton OH, 1957.
24. Marquez, Lt General Leo. "The Logistic Warrior", Air Force Journal of Logistics, 10: 9-11 (Spring 1986).
25. McClave, James T. and P. George Benson. Statistics For Business and Economics (Third Edition). San Francisco: Dellen Publishing Company, 1985.
26. McDaniel, Lt Col William T. "The Doctrinal Challenge: A Rebirth of Logistics Thought", Air Force Journal of Logistics, 10: 14-18 (Winter 1986).
27. -----. Combat Support Doctrine: Coming Down To Earth. Unpublished paper. HQ USAF/LEXY, Pentagon, Washington.

28. Meaney, Joseph G. "Genghis Khan: A Logistical Genius. Program Manager, 15: 27-30 (July-August 1986).
29. Miley, General Henry A. "Mid-East War Logistics. Army Logistician, 6: 2-5 (July-August 1974).
30. Navy Logistics System. OPNAV INSTRUCTION 4000.85. Washington: Office of CNO, 18 September 1986.
31. Northhedge, F.S. "Peace, War, and Philosophy," The Encyclopedia of Philosophy, Volume 6, edited by Paul Edwards. New York: Macmillian Publishing Co., Inc. and The Free Press, 1967.
32. Palmer, Lt General W.B. "Commanders Must Know Logistics", The Quartermaster Review, July-August, 1953.
33. Peppers, Professor Emeritus Jerome G. An Overview of Military Logistics. Unpublished paper. Air Force Institute of Technology, Wright-Patterson AFB OH, 1987.
34. ----- . Personal interview. Air Force Institute of Technology, Wright-Patterson AFB OH, 1987.
35. Porter, Noah, D.P., LL.D. Elements of Moral Science. New York: Charles Scribner's Son's, 1893.
36. Ruppenthal, Roland G. "Logistics and the Broad-Front Strategy", Command Decisions, edited by Kent R. Greenfield. Department of Army: Office of Chief of Military History, 1960.
37. Rutenburg, Lt Col David C., USAF and Jane S. Allen, ed. The Logistics of Waging War. Gunter Air Force Station AL: Air Force Logistics Management Center, 1986.
38. Shoemaker, Lt Col R. M.. Principles of Logistics (A Provisional Definition). Revised 21 June 1960. Asst. Dean Research, School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB OH.
39. Snedecor, George W. and William G. Cochran. Statistical Methods (Sixth Edition). Ames IA: The Iowa State University Press, 1967.
40. Thrope, George C. Pure Logistics. Washington: National Defense University Press, 1986.

41. Van Creveld, Martin. Supplying War. Cambridge: Cambridge University Press, 1977.
42. Wavell, Archibald Percival, 1st Earl of Wavell. Speaking Generally. London: MacMillan, 1946.
43. Westfall, Lt Col Fredrick W. and others. Military Logistics. School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB OH, September 1987.
44. Westover, Brigadier General O. "Influence of Air Warfare on Logisistics." Lecture to the Regular Army Officers' Course. The Quartermaster Corps School, Schuylkill Arsenal PA, 22 November 1934.

VITA

Lieutenant Donald C. McNeeley, Jr., USN, [REDACTED]
[REDACTED] He [REDACTED]
[REDACTED] in 1970 [REDACTED] attended
Florida Technological University from which he received a
Bachelor of Arts degree in Philosophy in 1976. He obtained
his commission through Officer Candidate School in 1980,
after which he attended Navy Supply Corps School at Athens,
Georgia, until August 1980. Following this, he attended
Submarine School at Groton, Connecticut, until November
1980. Following this he was assigned to the USS PERMIT
(SSN-594) at San Diego, California, as Supply Officer until
February 1983. His next assignment was at the Trident Refit
Facility, Bangor in Bremerton, Washington, where he served
as Assistant Supply Support Officer. Leaving that
assignment in February 1985, he was assigned to the USS
FULTON (AS-11) as the Stores Officer and as the Repair of
Other Vessel Supply Support Officer until May 1987.
Following his assignment to the USS FULTON, he was assigned
to the Air Force Institute of Technology where he earned a
Master of Science degree in Logistics Management in
September 1988. Upon graduation from AFIT, Lieutenant
McNeeley was assigned to the Air Force Institute of
Technology as an instructor.

[REDACTED] [REDACTED]
[REDACTED] [REDACTED]

| REPORT DOCUMENTATION PAGE | | | | Form Approved OMB No. 0704-0188 | |
|--|-------|---|---|--|---------------------------------------|
| 1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED | | | 1b. RESTRICTIVE MARKINGS | | |
| 2a. SECURITY CLASSIFICATION AUTHORITY | | | 3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution unlimited. | | |
| 2b. DECLASSIFICATION/DOWNGRADING SCHEDULE | | | | | |
| 4. PERFORMING ORGANIZATION REPORT NUMBER(S) AFIT/GLM/LSM/88S-48 | | | 5. MONITORING ORGANIZATION REPORT NUMBER(S) | | |
| 6a. NAME OF PERFORMING ORGANIZATION School of Systems and Logistics | | 6b. OFFICE SYMBOL (If applicable) AFIT/LSM | 7a. NAME OF MONITORING ORGANIZATION | | |
| 6c. ADDRESS (City, State, and ZIP Code) Air Force Institute of Technology Wright Patterson AFB OH 45433-6583 | | | 7b. ADDRESS (City, State, and ZIP Code) | | |
| 8a. NAME OF FUNDING/SPONSORING ORGANIZATION | | 8b. OFFICE SYMBOL (If applicable) | 9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER | | |
| 8c. ADDRESS (City, State, and ZIP Code) | | | | | |
| | | | 10. SOURCE OF FUNDING NUMBERS | | |
| | | | PROGRAM ELEMENT NO. | PROJECT NO. | TASK NO. |
| 11. TITLE (Include Security Classification) See Box 19 | | | | | |
| 12. PERSONAL AUTHOR(S) Donald C. McNeeley, Jr. B.S., LT, SC, USN | | | | | |
| 13a. TYPE OF REPORT MS Thesis | | 13b. TIME COVERED FROM _____ TO _____ | | 14. DATE OF REPORT (Year, Month, Day) 1988 September | |
| 15. PAGE COUNT 309 | | | | | |
| 16. SUPPLEMENTARY NOTATION | | | | | |
| 17. COSATI CODES | | | 18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number) Strategy, Tactics, Logistics, Combat Support Interrelationships | | |
| FIELD | GROUP | SUB-GROUP | | | |
| 15 | 05 | | | | |
| 15 | 06 | | | | |
| 19. ABSTRACT (Continue on reverse if necessary and identify by block number) <div style="margin-top: 10px;"> <p>Title: COMBAT SUPPORT AND THE OPERATIONAL COMMANDER</p> <p>Thesis Chairman: Dennis P. Dragich Lt Col, USAF Assistant Professor of Logistics Management</p> <p>Approved for public release IAW AFR 190-1.</p> <p><i>[Signature]</i> 17 Oct 88 WILLIAM A. [Name] Associate Dean School of Systems and Logistics Air Force Institute of Technology (AU) Wright-Patterson AFB OH 45433</p> </div> | | | | | |
| 20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS | | | 21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED | | |
| 22a. NAME OF RESPONSIBLE INDIVIDUAL Dennis P. Dragich, Lt Col, USAF | | | 22b. TELEPHONE (Include Area Code) 513-255-5023 | | 22c. OFFICE SYMBOL AFIT/LSM |

UNCLASSIFIED

This research study determined current combat support doctrine and how it affects operational commanders. Current combat support doctrine was first determined by a literature review, and then compared to what personnel in the tactical environment considered to be combat support. What effect combat support doctrine has on the operational commander was determined from personnel in the tactical environment.

To determine what personnel in the tactical environment held to be combat support and how it affects operational commanders, a Delphi questionnaire was developed. This questionnaire was sent to a panel of 30 personnel whose current assignment involved some aspect of combat support. Data was collected from U.S. Air Force and U.S. Navy personnel with results for the separate populations and the combined population used to determine if personnel in the tactical environment were in accord with the literature review concerning combat support, and the affects of combat support on the operational commander.

The analysis indicated that current combat support doctrine can be obtained from available literature, but personnel have not developed a consensus on the theoretical aspects of strategy, tactics, logistics and combat support. Additionally, the research indicated that operational commanders are relying on experience and intercommunication among strategists, tacticians and logisticians to obtain knowledge of how combat support effects both the tactical environment and the operational commander. (These). (FR)

UNCLASSIFIED